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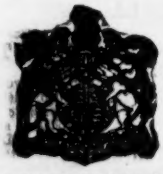

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The Lettsomian Lectures

ON

THE SURGERY OF THE THYROID GLAND,

WITH SPECIAL REFERENCE TO EXOPHTHALMIC GOITRE.

Delivered before the Medical Society of London on Feb. 3rd, 1913,

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LECTURE I.*

MR. PRESIDENT AND GENTLEMEN,—My first duty is to thank the Council of the Medical Society for the high honour they have done me in appointing me to deliver these lectures. During the last five and twenty years, thanks to many kind friends and others, I have enjoyed unusual opportunities for the study of this branch of surgery. The number of operations that I have performed for the removal of a portion of the thyroid gland (usually for innocent goitre) amounted at the end of 1912 to 751, and this figure does not include such operations as tracheotomy for otherwise inoperable malignant disease, ligation of arteries for exophthalmic goitre, and minor operations of various kinds. The number, although not nearly so large as those of some continental and American surgeons, is large enough, I venture to think, to warrant me in expressing an opinion on some of the surgical aspects of the subject.

Another reason for my choice of subject is that I find it has been dealt with by none of my predecessors in this office. The present time seems also to be a suitable one for a review of the present position of one important branch of my subject—namely, the surgery of exophthalmic goitre. At the present day this subject is attracting considerable attention; it is one on which there is as yet by no means unanimity, either as regards pathology or treatment. I make no excuse, therefore, for devoting a large part of my lectures to this important subject.

EXOPHTHALMIC GOITRE, GRAVES'S OR BASEDOW'S DISEASE, HYPERTHYROIDISM, THYREOTOXICOSIS.

The first two of these names are old and well-established terms which need no explanation. They may be used synonymously for the well-known disease in which the three cardinal signs of exophthalmos, goitre, and tachycardia are present, together with a good many other characteristic signs and symptoms such as muscular weakness, tremor, &c. The terms are also commonly applied, with complete justification, to many cases in which one or other of the first two cardinal signs are absent or apparently absent, although the minor signs and symptoms may be quite sufficient to render the diagnosis clear. Thus exophthalmos may be wanting in an otherwise characteristic case. A goitre, in the sense of an enlarged thyroid, is probably never absent, although the enlargement may be so slight, or the gland may be so deeply seated, that the most skilful palpation may fail to recognise it. Goitre and tachycardia, however, in the absence of other manifestations, are not in themselves sufficient for a diagnosis.

The term hyperthyroidism, which has lately become fashionable, has an advantage in that it admits of a much wider application, including many forms of the disease that are not exophthalmic, and are not the well-marked disease described by Graves, Basedow, and others. The term is a useful one for a very large number of cases which cannot strictly be classified under the older headings, but which nevertheless can be considered as belonging to the same type of case and due to the same cause. The term is due to modern ideas as to the pathology of the disease, and expresses the view that it is due to over-activity of the gland, a view which, although not absolutely proved, has much evidence in support of it.

The last term, thyreotoxicosis, although somewhat cumbrous and not at present very widely adopted, is in favour at the Berne school, so famous in the history of the surgery of the thyroid gland. This term, perhaps, is the best of all in that it implies that the disease is due to a thyroid poisoning without committing the user of it to the theory that the thyroid secretion is excessive in amount.

The use of these two last terms, founded as they are upon pathological grounds, at any rate has the advantage of avoiding the absurdity of labelling as exophthalmic goitre a case in which there may be no trace of exophthalmos, or of coupling with it the names of those who certainly never described the numerous minor forms of disease, which are now by common consent considered to be allied to the disease which they did describe.

MORBID ANATOMY.

Much discussion has taken place in the past as to the causation and pathology of this remarkable disease. The older view that it was a disease of the nervous system, a view which even now has a few supporters, must, I think, be abandoned. Practically everyone at the present time has adopted the modern theory that the disease is due to an affection of the thyroid gland.

In the first place the facts of morbid anatomy do not lend support to the nervous theory. It is true that various observers from time to time have described minute lesions in the brain, or sympathetic nerve. Such small lesions as have been described are best explained by the action upon the nervous system of the toxic substance elaborated in the thyroid. But these lesions are not constant or well marked. On the other hand (with the exception of the thymus, to which I shall refer later), it is in the thyroid gland alone that we meet with constant and definite changes. If we examine the body of any person who has died from Graves's disease, or after an operation upon any typical case of this disease, we find that the thyroid presents easily recognisable changes of a very pronounced character.

Appearances of the Thyroid in Graves's Disease.

The most striking naked-eye feature is the very marked diminution in the amount of colloid, often amounting to complete absence. The gland, instead of presenting the vesicular appearance so characteristic of the normal gland, or of the ordinary parenchymatous goitre, presents a solid, almost homogeneous, appearance. Instead of looking like a sponge or a honeycomb, as does the so-called parenchymatous or colloid goitre, it resembles a solid organ like the salivary gland or the pancreas. This change is easily recognisable both in museum specimens and in glands exposed or removed in the course of an operation, as you may see from the numerous specimens on the tables before you.

As an illustration of the fact that the thyroid of typical Graves's disease may easily be recognised by the naked eye alone, I may mention the following incident. One day towards the end of 1898 I was looking through the specimens of thyroid disease in St. Mary's Hospital Museum with Dr. A. F. Bill, the curator. We came across a specimen (No. 1025) described in the catalogue as one of "hypertrophy" of the thyroid gland, from a woman, aged 26, who had "died of pneumonia." There was no mention of Graves's disease, or of any symptom suggesting it. The characters of the goitre were, however, in my opinion, so clearly those of an exophthalmic goitre, that I recorded in my notebook, "Evidently an exophthalmic goitre, although not so described in the museum catalogue." The thyroid gland had a rounded and lobulated appearance; a section that had been made through one lobe showed a nearly homogeneous appearance; the thymus was greatly enlarged. The catalogue stated further that the microscope showed a "great increase in the interstitial tissue," and that "the individual acini were greatly increased in size, but without colloid secretion." It was also stated that "the thymus has normal histological characters." The specimen had been in the museum for more than 40 years, the patient having been under the care of Dr. Alderson in 1858. Fortunately the ancient records of St. Mary's Hospital are singularly perfect, and on consulting the post-mortem book of that year we found a clinical note that the patient was a governess, and that a prominent feature of her illness had been "palpitation." Finally, we unearthed from a dusty cellar the original clinical notes, which stated that "the eyes were prominent," that the patient was "nervous and excitable," that the pulse was "generally from 112 to 130," and that the thyroid had been enlarged for six years. Thus the clinical picture

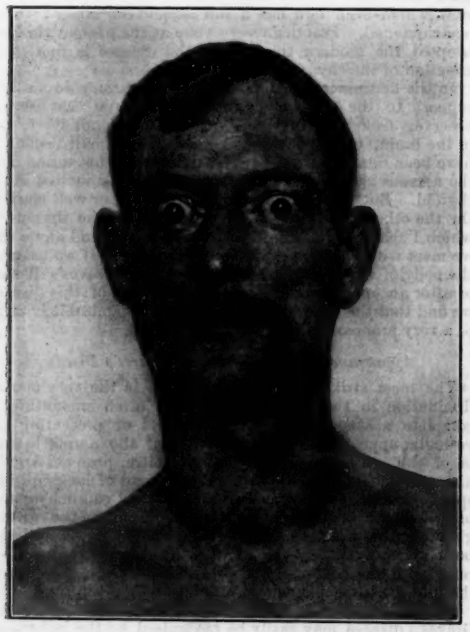
* Lecture II. was delivered on Feb. 17th, and Lecture III. will be delivered on March 3rd.

was typical of Graves's disease, as had been surmised from mere inspection of the museum specimen. By the kindness of the authorities of St. Mary's Hospital I am able to show you this specimen to-night.

This little incident seems worth recording, since even now one sometimes hears the statement made that the goitre of Graves's disease cannot be distinguished from that of ordinary goitre, whereas the truth is that the two conditions are, at least in well-marked cases, widely different.

I have seen several post-mortem examinations on patients who have died in medical wards from Graves's disease, and the morbid appearances in all have been exactly the same as those described above. Twice in my own practice I have unfortunately had the opportunity of seeing post-mortem examinations on cases of well-marked Graves's disease—once on a young woman who died after simultaneous ligation of three thyroid arteries (see Fig. 7) and once on a man who died suddenly just as an operation for the ligature of one artery was about to be performed. I have seen similar cases in the practice of others. In all the cases of well-marked exophthalmic goitre in which I have removed a portion of the gland by operation—in short, in all cases in which I have had the opportunity of examining the condition of the gland, either ante or post mortem—precisely the same changes have been observed both microscopically and macroscopically.

FIG. 1.



Typical primary Graves's disease in a man, aged 33, treated by removal of right lobe of thyroid.

The microscopic examination of the gland in a well-marked case presents always the same appearance—great increase in the amount of epithelium and great diminution or complete absence of colloid contents of the vesicles. The vascularity of the gland corresponds to the increase in the epithelial elements; the gland is well supplied with blood, but there is no evidence that the bulk of the tumour consists of dilated blood-vessels, as has sometimes been stated.

The Condition of the Thyroid in Earlier Cases.

So far I have been describing the condition of the gland as it exists in all well-marked cases of the disease, whether observed in the post-mortem room or in the operating theatre. But it is obvious that the condition above described is an advanced one, and that there must be an earlier stage of the same disease. At the present day, when operations are being done much more frequently than was formerly the case, we have more opportunities of observing the condition of the gland in non-fatal cases. I would venture to urge upon those who operate upon very early cases of Graves's disease to describe and to exhibit before the Pathological Section of the Royal Society of Medicine, or elsewhere, the specimens thus obtained. I refer not so much to those cases of adenoma or other simple disease of the gland in which clinically one or more of the symptoms of Graves's disease is present, and which may or may not be examples of true Graves's disease, but rather to those cases in which all the classical symptoms of the disease are present, although in a slight degree.

In this connexion I would draw your attention to the specimen now before you, which was removed by myself from a married woman aged 23, who first consulted me towards the end of April, 1909, on account of dyspnœa, depression, and general ill-health of nine months' duration. She had a bilateral goitre of moderate size, quite enough to account for the dyspnœa; she also complained much of nervousness and had a good deal of tachycardia, her pulse being usually 120. Although she herself had noticed nothing wrong with her eyes, there was a certain amount of fulness about the orbits, suggesting exophthalmos, and a relation who came with her told me that she had noticed some prominence of the eyes. On account of the dyspnœa, and in the belief that I was dealing with an incipient case of Graves's disease, I removed most of the right (the larger) half of the thyroid gland, and the patient made a good and rapid recovery, although for some hours there was more restlessness than is usual after ordinary goitre operations. Two months later she expressed herself as being very well and much better for the operation. The pulse was then 102. Soon after this she returned to South Africa. I have had no opportunity of seeing her again.

Referring to the specimen of gland that was removed (Fig. 5) you will notice that although most of it resembles at first sight an ordinary parenchymatous goitre, yet there are scattered through it numerous yellowish, ill-defined, solid patches. On microscopical examination these are found to consist of tissue similar to that which is found throughout the gland of an advanced case of Graves's disease. In this case, therefore, the slight but well-defined naked-eye and microscopical changes in the gland corresponded accurately with the slight but recognisable clinical symptoms of Graves's disease presented by the patient.†

This patchy or focal distribution of the disease is one of the points upon which stress is laid by those who think that the disease is due to some form of septic absorption. Certainly there is something to be said for this view. In many cases a fairly definite source of sepsis can be found, such as carious teeth, a gastric ulcer, appendicitis, and so forth. In the above-mentioned case there was a history of some uterine sepsis following a confinement some months before the onset of her other symptoms.

Secondary Graves's Disease.

In the group of typical well-marked cases which I have been considering and of which I am showing you several specimens, the thyroid gland previous to the onset of the symptoms appears to have been normal. But there is another group to which the name of secondary Graves's disease may be given. These are cases in which the symptoms and pathological appearances of the disease are engrafted upon a previously existing simple goitre, either a cyst or an adenoma, a parenchymatous or an adeno-parenchymatous goitre.

In such instances, besides the characteristic morbid appearances of the recently acquired disease, we naturally also find obvious evidence of the previous goitre, shown by fibrosis, calcification, adenomatous or cystic degeneration, and so forth. These old-standing changes may be much more obvious than the changes of the Graves's disease and may easily mask or overshadow the latter. But to a superficial observer they may be the most obvious morbid changes in the thyroid, and he may easily overlook the presence of the really characteristic parts of the gland. Indeed, without a microscope it may be very difficult to distinguish the true

† In an excellent paper by Dr. Helen Chambers[1] on the Pathology of Goitre a microphotograph of the gland from this case is given. See also in connexion with this subject an interesting paper by Mr. Rupert Farrant in the Proceedings of the Royal Society of Medicine.[14]

nature of such a case, especially if the symptoms have not been well marked.

We cannot look upon these more obvious changes as the cause of the Graves's disease any more than we should regard an old hydatid cyst found in the middle of a cirrhotic liver as the cause of the cirrhosis. There are, however, authors who consider that ordinary goitres do predispose to the exophthalmic variety, by acting as a source of irritation and thereby causing secondary reaction in the other parts of the gland. It seems impossible to accept this idea, in view of the fact that Graves's disease is no more common in regions of endemic goitre than it is elsewhere. Indeed, it is probably less common.

An example of secondary Graves's disease is afforded by this specimen that I removed from a lady, aged 39, who presented all the typical signs of exophthalmic goitre, and who, some months before I saw her, had also had continuous diarrhœa, occasional vomiting, and great excitability. The main portion of the gland consists of an old adenoma which, from the abundance of fibrous tissue, marked encapsulation, and other common features of a cystic adenoma, must have existed for years. But in the small portion of thyroid still remaining outside the tumour is to be seen with the naked eye, and still more clearly with the microscope, the hyperplasia so characteristic of Graves's disease.

A similar but less striking example is afforded by this other specimen, where the evidence of old parenchymatous disease is at first sight more obvious than the relatively insignificant changes of Graves's disease, which, nevertheless, were easily demonstrated microscopically. In this case, as might be expected, the symptoms of exophthalmic goitre, although characteristic, were much less pronounced.

FIG. 2.

Section of thyroid gland removed by operation from the preceding.

FIG. 3.

FIG. 4.

Similar specimens removed from two women with typical primary Graves's disease.

Cases of Simple Parenchymatous Goitre.

There is yet another type that is quite common clinically, but, in my opinion, should not be classed as Graves's disease nor even as hyperthyroidism. These are cases of ordinary goitre, generally a deeply seated cyst or adenoma, with dyspnœa and tachycardia, and often, too, some degree of tremor and even emaciation. Of the exact pathological position of these cases I am not sure. They do not present the characteristic morbid appearances of hyperthyroidism. But of this I am quite certain: if left alone they show no tendency to develop exophthalmos, they do not run the ordinary course of Graves's disease, and they are not attended by the grave risks of that disease. On the other hand, they tend to progressive respiratory distress and eventually to cardiac dilatation and degeneration. After an operative experience of a large number of such cases, I can confidently assert that they can be easily and safely cured by operation, provided always that the symptoms have not been allowed to continue so long that the heart has become seriously affected. Such cases are often classed as Graves's disease or hyperthyroidism, and their inclusion does much to confuse statistics.

The tendency at the present day to include under the headings of exophthalmic goitre or hyperthyroidism a very large number of instances of simple parenchymatous goitre with some rapidity of pulse, which is, indeed, an extremely common type of case, is well exemplified by Dr. A. L. McKisack,[2] who remarks that "cases of exophthalmic goitre in which the majority of the classical signs are absent, are apt to be overlooked." He goes on to cite cases in which the administration of thyroid extract resulted in much benefit. Since, however, it is well known that thyroid extract and iodine are harmful in true Graves's disease, even in slight cases, whereas they are very beneficial in ordinary simple parenchymatous goitre, it is difficult to understand why the writer considered these cases to be atypical Graves's disease and not ordinary simple goitre.

Degree of Changes in Thyroid.

Dr. Albert Kocher,[3] utilising the very large pathological material of the Berne clinic, has made careful histological and clinical investigations of 195 specimens of hyperthyroidism of various kinds. He found that the two principal changes are: (1) diminution in the amount of colloid; and (2) cylindrical cell proliferation. These findings agree exactly with my own observations on the glands I have removed. The degree of these changes varies in different stages of the disease and in different clinical types. In early mild cases, and more particularly in those which have supervened on an ordinary parenchymatous goitre, a certain amount of colloid is present, and the symptoms are mainly those recognised as the result of pure thyroidism—emaciation, tachycardia, nervousness, sensation of heat. The more iodine the gland contains the more marked are these symptoms.

In a typical, well-marked case, of fairly long duration, or in the early stages of a very acute case, there is very little

colloid, but much cell proliferation of both a regular and irregular polymorphous character. The more severe the disease the greater the irregularity of the cells, which is accompanied by alteration in the nuclei and desquamation of cells. He also thinks that different histological appearances are accompanied by different types of symptoms, but at present no definite conclusions can be drawn on this point. Just as, clinically, symptoms are variously combined, so do we find histologically many instances of mixed forms.

The Iodine Content of the Gland.

When we come to consider the chemical pathology of Graves's disease we find that at present we have very little certain knowledge with regard to it. The subject is very much too complicated for me to deal with at any length to-night, but I should like to emphasise these points, which seem to be more or less definitely established.

The chief interest of the question is centred in the iodine content of the gland. When we can solve the mystery of its production, its subtle combinations, and its variable activities, we shall be well on the road to the solution of the whole problem. In normal glands the iodine is, of course, combined with the thyreoglobulin as iodothyrin. In Graves's disease there is a diminution in the amount of the thyreoglobulin; the iodine component of the thyreoglobulin appears to be very variable, and appears to be not in any way proportional to the total iodine content of the gland. For example, in cases in which the colloid is very thin and fluid there may be a great quantity of iodine present, but very little of it is combined with the thyreoglobulin. The total iodine content even of the normal gland is very variable. In Graves's disease it is still more so. It has been found by Fonio[4] that the effect on the metabolism of preparations made from normal glands and of those from Graves's disease in cases of myxœdema varies according to the amount of iodine present. But, on the other hand, we must not assume that the intensity of function in a given case of the disease is proportional to the amount of material present, for, on the contrary, the less material is in the gland the more apparently is secreted.

Pure iodine alone is not effective in myxœdema. This point is against the suggestion that has been made that in Graves's disease the gland gives out its iodine as pure iodine. On the other hand, iodine certainly aggravates Graves's disease, while its injudicious administration to cases of ordinary goitre may produce symptoms closely resembling those of acute exophthalmic goitre. It is more probable that the iodine which is brought to the gland forms some abnormal combination, which produces toxic effects.

Relations of Graves's Disease and Thyroid Hyperplasia.

Summing up as regards the morbid anatomy of Graves's disease, there is no doubt that there is a perfectly definite relation between the symptoms of Graves's disease and the condition of the gland. The latter shows always a condition of hyperplasia. That Graves's disease, or hyperthyroidism, even in its minor forms can occur without this hyperplasia there is no evidence whatever. Although surgeons have from time to time claimed to have cured cases of exophthalmic goitre or hyperthyroidism, in which the gland is stated to have been normal, one must accept the accounts of such cases with great hesitation.

"That Basedow's disease is associated with a normal thyroid," says Th. Kocher,[5] "no one has ever yet demonstrated," and there can be no doubt as to the correctness of this statement.

"Hyperthyroidism," says Dr. Charles Mayo,[6] one of the most distinguished and experienced operators for exophthalmic goitre, "is woefully lacking in evidence of its etiology, excepting the condition of the gland. There are many theories, but none as yet worthy of general acceptance." With this opinion we must at present regretfully concur.

PERSISTENCE AND ENLARGEMENT OF THE THYMUS GLAND.

I now turn to that other organ of the body which is, I believe, constantly affected in the more severe forms of Graves's disease—namely, the thymus. In none of the post-mortem examinations of cases of Graves's disease (perhaps a dozen in number) at which I have been present have I failed to see a persistent and usually a very marked enlargement of the thymus gland. Dr. Hector Mackenzie[7] and many others have made a similar statement. It is frequently as large as the palm of the hand and often weighs several ounces. It generally forms a thick solid mass lying over the great vessels and the upper part of the pericardium, but may be in the form of a thin layer spread out over the whole of the upper mediastinum and anterior surface of the pericardium. If carefully looked for, it can, I believe, always be found. (See Fig. 7.)

Why the thymus is enlarged, or why it should be present at all at an age at which it is commonly a mere vestige, is quite unknown, but that its presence plays some important part in the pathology of the disease can scarcely be doubted. Post-mortem records usually simply state the bare fact that an enlarged or persistent thymus was present. Dr. Langdon Brown,[8] at a meeting of the Hunterian Society in 1909, describing the post-mortem appearances of a severe fatal case of Graves's disease, said that the most striking feature of the thymus "was the enormous size of Hassall's corpuscles, nearly the whole field of the microscope being filled by enormous concentric corpuscles." Soupault, according to Melchior,[9] also mentions this histological change, but, on the other hand, several authors have reported that they have found the histology absolutely normal, while others have noted a decrease in Hassall's corpuscles. It is much to be desired that pathologists and physicians should pay more attention than they generally do to the thymus of Graves's disease, and tell us what is the meaning of this strange condition.

Melchior,[9] in a very comprehensive article on the thymus, reports on a large number of cases from his own experience and from literature. He comes to the conclusion that probably in all well-marked cases of Graves's disease the thymus is persistent. He quotes from many authors, whose percentages in series of cases vary very much. For instance, von Bialy found persistent thymus only four times out of a series of eight necropsies on Graves's disease, and of these he records that the former were not of a more severe character than the latter. The balance of opinion, however, appears to be that the thymus is persistent in most severe cases of the disease. Capelle worked out an interesting series of cases showing that of patients dying from intercurrent diseases 44 per cent. only showed persistent thymus, of those dying from the severity of the Graves's symptoms 82 per cent., and of those dying in the typical sudden post-operative manner 100 per cent. He therefore drew the conclusion that the size of the thymus indicated the severity of the disease and that where it was possible by X rays, percussion, and examination of the rest of the lymphatic system, to diagnose persistence of the thymus, operation was contraindicated.

Before, however, we subscribe to this rather sweeping statement, it would be wise to consider a little more fully any knowledge we may possess as to the connexion between the persistent thymus and the sudden death, post-operative or otherwise, which all thyroid surgeons will admit occurs only too frequently in cases of Graves's disease.

In practically all the post-operative cases the thymus is found to be persistent, but, on the other hand, there can be no doubt that many cases on which operations are successfully performed also present the same conditions. Such cases, in which the diagnosis was made beforehand, are reported by Kocher, Leischner and Marburg.[9] The latter authors consider it no contraindication unless it is combined with cachexia and myocardial degeneration of the heart or other advanced visceral complications. Cases have also been reported of successful operations, followed later by death from other causes, in which post mortem an enlarged thymus was found.

Persistence of this organ is, of course, often associated with hyperplasia of other parts of the lymphatic system, more particularly with enlargement of the cervical glands, which Kocher states to be always demonstrable if looked for. And yet it is difficult to consider the post-operative deaths merely as examples of a status lymphaticus, because the former cases usually present certain special symptoms—e.g., restlessness and marked tachycardia—which seem to be quite distinct from the sudden syncope of the latter. An enlarged thymus is also occasionally found in cases of ordinary goitre which have presented no symptom whatever of Graves's disease.

With regard to the patients who die from the severity of the disease itself, and yet show no persistent thymus,

Melchior suggests that it may have persisted for some time and then have atrophied as a part of the general cachexia; a point which supports the view is the fact that such cases have generally been in older patients. He therefore does not consider the absence of a thymus to be any indication that the case will not be a fatal one. From a practical point of view, therefore, the probable presence or absence of a thymus is not of nearly so much value in deciding on operation, as a thorough examination of the general condition and visceral functions of the patient.

The constant or almost constant enlargement of the thymus in Graves's disease has led to the suggestion that the organ should be excised. This has actually been done with success by Garré[10] and others. There is considerable reason for thinking that removal of the thymus does lead to a diminution of the lymphocytosis, which is well known to be a common feature of Graves's disease. Even if it were proved, however, which it is not, that the thymic enlargement were the cause of the disease, and that its removal would consequently be beneficial, it is scarcely likely that this operation would ever meet with general approval as a means of treatment.

The mechanical difficulty of making anything like a complete removal of this organ in Graves's disease is well-nigh insuperable. When we consider that the organ in this disease often extends for six or more inches downwards behind the sternum, and when we notice the close connexion which exists between the thymus and such structures as the innominate vein and the pericardium, as may be seen in several of these specimens before you, we are forced to conclude that the operation can seldom be one of practical utility. I have many times removed large tumours from the mediastinum, tumours extending downwards even as much as six inches, but these have nearly always been thyroid tumours which have grown downwards from the neck. These cases I shall deal with more fully in my third lecture. I would merely point out here that to remove a tumour like the thymus, which originates in the mediastinum and derives its blood-supply from that region, is a very different matter from removing a tumour like a thyroid which has grown downwards, carrying its blood-vessels with it. The latter can be pulled upwards without cutting or tearing main vessels; the former cannot. I have myself never attempted to remove the thymus.

Much discussion has taken place as to the *blood changes* that occur in Graves's disease. It is commonly stated, and so far as I have seen the statement is correct, that in most cases of this disease there is a tendency to slight diminution in the total number of white corpuscles, with marked increase of the lymphocytes and diminution of polymorphonuclear cells. Attempts have been made to found a diagnosis of Graves's disease upon the results of the blood examination alone, but this is not warranted. "We should like," says Professor Kocher,[5] "to state emphatically that our blood picture is no pathognomonic sign, in the sense that from the blood alone can Basedow's disease be diagnosed. That we have never asserted. On the contrary, our steadily increasing experience shows us that also in hypothyreosis similar blood changes occur."

FIG. 5.

Thyroid gland removed from an early case of primary Graves' disease, showing patchy distribution of the morbid lesions.

FIG. 6.

Thyroid gland from another similar case of slight but typical primary Graves's disease. Seen by transmitted light under a low power. The dark areas show the disease, the vesicles of the rest of the gland still contain colloid.

THE PARATHYROIDS.

I come now to the parathyroids. Everyone who has operated much upon the thyroid gland or who has conducted anatomical or pathological researches upon its structure cannot have failed to observe the fact that in the immediate neighbourhood of the gland itself there are several small glandular masses, some of which on microscopical examination appear to have the ordinary structure of normal thyroid, while others consist of closely packed epithelial cells without colloid. To the former the name of accessory thyroids is commonly given. The latter are known as the parathyroids. Around the parathyroids has grown up, especially in America, an enormous literature, the product of a very large amount of painstaking research on the part of experimental physiologists, pathologists, and surgeons. It is commonly held that the parathyroids have a function apart from that of the thyroid itself. Experiments have been performed which are supposed to prove that if the thyroid gland is removed and the parathyroids preserved, a certain set of symptoms will supervene; while, on the other hand, if the parathyroids are removed and the thyroid

preserved, another set of symptoms, and notably tetany, will occur. Surgeons have been reminded again and again of the importance of preserving the parathyroids if tetany is to be avoided.

Now, I confess to a profound scepticism as to the whole of this teaching. My reasons for this statement I base principally upon the results of my own observations in the operating theatre and at the bedside. For many years I have been in the habit of removing such portions of the thyroid gland as seemed advisable without paying any attention whatever to the parathyroids. I never remove the whole thyroid, but I have often removed both inferior horns, or both superior horns, or the whole or nearly the whole of one lobe together with a half or even more of the opposite lobe, either the upper or the lower half. In no single case have I seen tetany, although I have been fully aware of the possibility of its occurrence after too free a removal of the gland, and have constantly been on the watch for it. Neither have I seen myxœdema follow any operation of mine upon the thyroid, with the exception of one or two slight and transient cases, following extensive operations, and ending in recovery.

Provided that one leaves the patient with a sufficiency of healthy thyroid tissue, a quantity which may be estimated at from a sixth to a quarter of the gland, it matters not in the least, in my opinion, which part of the gland be removed and which left behind. Nor does it matter in the least whether the portion removed does or does not include the parathyroids.

In the days, now 30 years ago, when the ill-effects of complete removal of the thyroid were not fully recognised, it was taught that the treatment of certain forms of goitre should be complete removal of the gland. Tetany was then often observed, and was recognised as one of the results of the complete operation, in the same way as we now regard myxœdema or cachexia thyreopriva. In this connexion I venture to point out what seems to be a fallacy in the conclusions drawn from those experiments upon animals which are supposed to show that removal of the parathyroids causes tetany. In man, at any rate, it is quite impossible to remove all parathyroid tissues without at the same time damaging the thyroid so extensively that conclusions based upon the assumption of its capacity to work normally are not trustworthy. The same is probably true of the lower animals.

That the preservation of the parathyroids may prevent the usual consequences of complete removal of the thyroid gland is quite possible, if the parathyroid tissue is in sufficient quantity to develop and take on the function of that organ.

In 1901 I wrote cautiously of the parathyroids that "their function is supposed by some to be different from that of the thyroid gland itself." In 1908, in a discussion at the Royal Society of Medicine,[11] I expressed my disbelief in the theory of separate parathyroid function. Since that time the more I have read of the physiological and pathological investigations, and the more I have seen of the actual results of removal of thyroid and parathyroid tissue in man, the less am I inclined to believe that the parathyroids have any function apart from that of the thyroid itself.

Into the numerous experiments of both physiologists and pathologists I do not think it necessary to enter here, because within the last few months the whole of the evidence from this point of view has been most ably and completely reviewed by Professor Swale Vincent in his admirable book on "Internal Secretion and the Ductless Glands." (Arnold, 1912.) The author's conclusions as to the parathyroids based upon experimental physiology entirely agree with my own views, based upon the clinical observations, of which I have already spoken. They are also in accordance with the results obtained by the elaborate and painstaking researches of Dr. David Forsyth and Mrs. F. D. Thompson[12] in the domain of comparative anatomy and histology.

In the normal thyroid there exist, between the colloid-containing vesicles, groups or epithelial cells identical with those that line the vesicles. Professor Vincent states definitely that "this tissue is in all essential respects of the same nature as that forming the parathyroids." The parathyroids, therefore, in the light of these recent investigations, may be regarded as merely outlying portions of a tissue which also exists in considerable quantity within the thyroid itself. This tissue differs from that of the vesicular epithelium only in not having yet secreted colloid. It resembles closely the tissue found in greater abundance in the embryo and in young animals generally. It is undeveloped thyroid tissue. Moreover, both in the intervesicular tissue and in the parathyroids themselves there may be found here and there intermediate stages in which colloid is actually beginning to be formed.

Mrs. Thompson, to whose work I have already referred, has made a careful examination of the glands through a series of mammals, and states that the fundamental histological features of the tissues of the thyroid and parathyroid gland are, if not identical, very significantly similar. Occasionally the difference between the tissues is well marked in degree of compactness, staining reactions, encapsulation, and size of nuclei; but these differences are not fundamental, and there are abundant instances where it is almost impossible to distinguish the parathyroid from the intervesicular tissue of the thyroid. The author states that in the case of the internal glandule which is in direct continuity with the thyroid she has frequently observed every kind of transition to the colloid vesicle formation of the latter. In the external parathyroid of the ox can sometimes be seen all stages between undoubted thyroid and typical parathyroid. The identity of the parathyroid tissue with the intervesicular thyroid tissue is strikingly illustrated in the case of the badger. In this animal the only difference between the thyroid and parathyroid glands appears to be the absence of colloid from the latter tissue. This development of colloid in what was originally parathyroid, under certain circumstances, actually occurs.

I very strongly recommend Mrs. Thompson's publication to all who are interested in this subject, and also Professor Vincent's book which contains hundreds of references to the literature on the subject, beautiful illustrations of the thyroids and parathyroids in many animals, and a judicious summary of the evidence on both sides of the question. More particularly would I recommend them to those who still think that the function of the parathyroids is different from that of the thyroid.

EXOPHTHALMOS.—SOME POINTS IN DIAGNOSIS.

With regard to the exophthalmos, which is so striking and remarkable a feature of Graves's disease, there can be little or no doubt that it is due solely to local accumulation of fat within the orbit. This is the only explanation that is consistent with the actual findings of morbid anatomy. When we ask further why should fat be deposited in this situation, we are really at present quite in the dark, and can only answer vaguely that its deposition is in some way connected with metabolism which is undoubtedly influenced in some obscure fashion by the alteration of the thyroid secretion. We can no more explain why there is an increase of fat in the orbit than we can explain the undoubted fact that in many cases of Graves's disease there is a remarkable increase in the amount of subcutaneous abdominal fat. Its occurrence in this latter situation is not so obviously noticeable and easily escapes recognition. That the prominence of the eyes that has been observed post mortem by myself and others to be accompanied by an actual and marked elongation of the optic nerve can be caused either by spasm or by relaxation of the minute amount of muscular tissue present in the orbit seems to me to be mere nonsense.

With regard to diagnosis I can only in this lecture touch lightly upon one or two points which seem to me of interest. I have often asked my medical friends to show me a case of Graves's disease in which the characteristic lid symptoms have been of any real value in diagnosis. My own experience has been that they are quite valueless from this point of view, and occur only in conjunction with other signs and symptoms which are alone quite enough to establish a diagnosis. I believe that they arise simply from the altered mechanical conditions which are present in any case of exophthalmos.

A far more important indication of early Graves's disease, which I have found of value in the diagnosis of doubtful early cases, is in the subjective sensations with regard to heat and cold. A patient with ordinary parenchymatous goitre—that is, with a thyroid gland which, although enlarged from over-distension with colloid, is nevertheless in a condition of hypothyroidism, not performing its function fully—will be found to complain of cold rather than heat. Such a patient, like one with myxœdema, is happier in warm weather. A patient, on the other hand, with incipient

Graves's disease or hyperthyroidism, complains, often bitterly, of heat, prefers to be lightly clad, and is never so happy as on a cold, frosty, winter day.

An interesting case has recently been communicated to me of a lady, now aged about 40, who for some ten years suffered from well-marked Graves's disease, which has now undergone spontaneous cure. It has been remarked by her family that whereas she was wont formerly to complain of heat, she has now completely changed in this respect, and finds some difficulty in keeping herself sufficiently warm. It is probable that in this case the glandular cell proliferation has been replaced by some degree of actual atrophy. It is an old observation that Graves's disease may in the process of cure pass into myxœdema.

THE CONDITION OF THE HEART.

This is, perhaps, the place in which a few words may be said upon the goitre heart. Every surgeon who has had much experience of operations for ordinary goitre is familiar with the case of the patient who has suffered for years from dyspnœa due to the long-continued and increasing pressure of a growing goitre, who has postponed seeking operative relief, sometimes, I am sorry to say, by the advice of his medical man, more often perhaps against it, until the heart has become seriously affected by dilatation, and until it has become quick and irregular and liable to attacks of palpitation. Such a condition of heart, to which the name of kropfherz (goitre heart) was given years ago by continental surgeons, is in its severe and later stages a serious cause of anxiety to the operating surgeon, and I have had to deal with only too many of these cases. The condition is due to long-continued mechanical pressure upon the trachea and veins at the root of the neck. There is, however, another kind of goitre heart in which the rapidity and irregularity of the heart are probably due to chronic poisoning by thyroid secretion. Such is the heart of Graves's disease. Typical instances of either kind are easily recognisable, but there is a large group of cases in which it is extremely difficult to say to which of these causes the heart affection is to be attributed. From the operative point of view it is extremely important to endeavour to separate the two varieties.

The tendency to sudden death in severe Graves's disease is one of the reasons why most surgeons, including myself, dislike and fear operations upon bad cases of the disease. Most of the surgeons who have had the largest experience of operating for the disease rightly refuse altogether to operate upon the worst cases, and especially upon those with marked cardiac degeneration. "We have seen," says Kocher, "no less than five patients die suddenly and unexpectedly during the period of preparation for operation." If these deaths had not occurred shortly before the operation they would certainly have contributed to affect very seriously the mortality of the operation.

A good many years ago at a provincial hospital I was asked to see a young woman with ordinary typical exophthalmic goitre, not unusually severe. My opinion was sought as to the advisability of an operation which had been suggested. Being at the time opposed to all operative measures for Graves's disease I advised against operation, and nothing was done. I subsequently heard that within a week of my seeing her the patient suddenly and unexpectedly died. It was fortunate for the operator that he had not carried out his original intention, or he would almost certainly have had a death on the table.

A still more distressing case has occurred to myself within the last few months. In October, 1912, I was asked by Dr. Henry Sandifer to see a patient, aged 36, the subject of well-marked Graves's disease, who had also been seen by Dr. James Mackenzie and Dr. Hale White. He had a history of previous albuminuria and mitral regurgitation. The most marked feature of the case was the great dilatation of the heart, which had been as much as 1½ inches or more to the left of the nipple line, and continual irregularity due to auricular fibrillation. The symptoms had existed for about a year, but for some time before this there had been a period of ill-health which probably was attributable to the disease. During the summer of 1912 he improved considerably under prolonged rest in bed, but relapsed in the following November. About the diagnosis there was not the slightest doubt, and the patient was evidently severely affected by the chronic poisoning of the disease. When asked as to the advisability of operation, I expressed my opinion that any operation in the condition in which he was at that time would prove fatal, but that if he were again kept absolutely in bed for some weeks, and the condition of the heart were to improve, it might be desirable to tie one superior thyroid artery under a local anæsthetic. A month later, after a further consultation with, and with the consent of, Dr. Hale White, and seeing that the patient had formerly relapsed under prolonged medical treatment, it was decided to attempt this small operation, and arrangements were made for its performance a few days later. After the usual injection of novocaine and adrenalin had been given, but before the operation had been actually commenced, the patient quite suddenly collapsed and died. There was no dyspnœa. Death was absolutely sudden, and was clearly due to cardiac syncope. The post-mortem examination showed a very large heart, weighing 14½ ozs., a typical solid thyroid with no

FIG. 7.

Thyroid and thymus glands from a typical case of Graves's disease of 3 months' duration in a woman aged 18.

visible colloid, and a large persistent thymus nearly 6 inches in length extending all over the upper part of the pericardium.

There is no doubt that this patient was an exceedingly bad subject for any operation. Yet with the single important exception of the heart the case was apparently not worse than some in which I have seen great benefit from ligation. The condition of the heart clinically was apparently not much worse than it has been in many of the cases in which I have had to do extensive and formidable operations for ordinary goitre, with the most happy results. All who saw the case took an extremely grave view of the cardiac condition. Whether in this case a general anæsthetic would have been better than a local one is at least open to doubt, since the risks of general anæsthesia in bad cases of Graves's disease are only too well known.

MEDICINAL AND OTHER FORMS OF TREATMENT.

With regard to medicinal treatment of Graves's disease it is not desirable that I should enter into any details. I venture to think that no unbiassed or impartial observer can

doubt the truth of the assertion that medicinal treatment at present does practically nothing to cure the disease. Many cases abort at an early stage and come to an end spontaneously. In many cases, and especially when the patient's circumstances permit of the taking of abundant rest, both mental and bodily, after a longer or shorter period of ill health, more often long than short, the disease does seem to wear itself out, and the patient is more or less completely restored to health, provided that in the meantime secondary degenerations of viscera have not progressed to such an extent as to render complete recovery impossible.

Temporary alleviation of one or other symptom may, of course, be produced by drugs. Digitalis and strophanthus, by allaying the rapidity of the heart's action, and thus giving rest to an over-worked organ, may cause the patient to seem better for a time, but they do nothing to counteract the poisoning that causes that over-activity. It is merely a case of adding the effects of another and symptomatically antagonistic poison to those of one that is already present. They do nothing to get rid of the thyroid poisoning which is the cause of the disease.

Of the value of rest in the treatment of the disease there can be no doubt, but its beneficial effect is probably exerted solely upon the heart. By giving the heart less work to do it postpones the time when the over-active heart becomes tired out and gives the body more time to overcome and wear out, if it can, the chronic poisoning that is the essential cause of the disease. Otherwise it does nothing towards effecting a cure. A diet consisting largely of milk has often seemed to me to be of benefit. But whether this benefit is due merely to the improvement in bodily nutrition which such a diet may cause, or whether it is due to the calcium or other salts contained in the milk, is by no means clear. The much-vaunted milk of thyroidectomised goats, which is by some supposed to be of value in the treatment of the disease, in my opinion owes whatever virtue it may possess to the fact that it is milk, and not to the fact that it comes from an animal without a thyroid. One may safely say that rodagen, the derivative of such milk, has been proved to be valueless.

If I may here venture into the region of mere speculation it has always seemed to me probable that the thyroid plays a much more important part in the chemistry of the blood salts, especially those of the alkalies and alkaline earths, than is generally supposed. The value of iodine and iodides in the treatment of simple goitre, the apparently beneficial effect caused by sodium phosphate in the treatment of Graves's disease, and the use of calcium lactate in the prevention of tetany, appear to point in this direction. With these ideas in my mind I was led some years ago to try empirically the effect of large doses of sodium chloride in the treatment of exophthalmic goitre. Patients had frequently told me that they ate little or no salt. In several cases very striking benefit appeared to occur, but whether it was merely accidental, or whether it was due to the increased absorption of fluid which necessarily followed, I do not know. Subsequent experience has not wholly confirmed the hopeful expectations I was at first led to entertain, but even now it is my habit to recommend salt as a preliminary measure before resorting to operation.

The late Dr. George A. Gibson, speaking at the Liverpool meeting of the British Medical Association in July last, said: "In exophthalmic goitre no remedy approaches, even distantly, suprarenal extract in importance, and it may be regarded as almost a specific for the affection." More definite evidence of its value is much to be desired, and the little I have seen or heard of its employment has scarcely seemed to me to warrant so optimistic a statement. According to Kocher, investigations have been made by Wiener which tend to show that adrenalin administrations cause increase of thyroid secretion. With regard to the treatment of an acute attack of hyperthyroidism, few remedies give more relief to the patient's distress than cold applications to the neck, most conveniently in the form of an ice-bag. The benefit is, of course, only a temporary one.

X Ray Treatment.

There is but little doubt that X ray treatment, if judiciously applied, is of real use in the treatment of the disease. Care must, however, be taken to avoid dermatitis, which appears to be easily produced. Among the numerous published papers on the subject I would refer especially to that by Dr. Florence Stoney,[13] since I have had the opportunity of seeing many of her patients and can testify to the benefit that has accrued to many of them. This method of treatment has the advantage of being safe, although somewhat tedious. It is most suitable for early cases; also for acute cases in which operation is dangerous.

Serum Treatment.

In the present day, when rapid strides are being made in the field of serum-therapy and great stress is laid on the efficacy of this kind of treatment, it is natural that a disease of such common occurrence and such unsatisfactory prognosis as exophthalmic goitre should form a basis for much experimental research along these lines. When, however, we consider the elusive pathology of this disease and our comparative ignorance as to its causation, we realise that the pathologist has before him a task which is very much less straightforward than that in the case of a disease of definite microbic or toxic origin.

In 1899 Lanz treated patients suffering from exophthalmic goitre with the milk of thyroidectomised animals, and later Möbius introduced the use of serum from animals that had been similarly treated. This course was based on the assumption that the function of the secretion from the thyroid gland was to neutralise some poison in the blood, and that in exophthalmic goitre this secretion was present in excess. The milk and serum of thyroidectomised animals were thus supposed to contain a substance which would neutralise this excess. This treatment has been widely tried, and many cases have been reported as improved, but even Möbius himself stated that he considered it doubtful whether any real cure could be obtained.

Of more recent years this question of serum-therapy has been investigated in a thorough and scientific manner by Dr. Beebe[15] of New York. Assuming that there was an excessive activity of the thyroid, with the production of a secretion in some way abnormal, he aimed at producing a serum which would inhibit the secreting power of the gland, and which would also be specifically antagonistic to the thyroid secretion. By previous experiments he had shown that if a tissue nucleoproteid—e.g., liver or kidney—were injected into an animal, the serum of that animal developed a cytolysin, which was highly specific for the tissue injected. He therefore injected into rabbits both the nucleoproteid of the thyroid and the thyreoglobulin. The serum thus obtained he tests by its agglutinating and precipitating power on thyroid and proteid fragments. During the last six years he has used it in the treatment of 2000 cases of hyperthyroidism. In reporting on the results he divides the cases into three groups.

1. Patients who have had the disease only a short time, from two weeks to six months, either mild or acute. All the clinical symptoms may be apparent, or one or two may be lacking. An enlarged gland with some cardiac disturbance is always present; 80 per cent. of this group are reported as cured or very much improved.

Now it is at once obvious that a certain proportion of these cases and a large proportion of the cures are not examples of definite Graves's disease at all. They present an enlarged gland and more or less definite cardiac symptoms. If in these instances the gland were examined microscopically it would certainly rarely be found to represent the very typical picture which is present in true Graves's disease. In some of these patients also a careful investigation would probably reveal the fact that the condition was one of hypothyroidism and not hyperthyroidism. Many of them recover completely on administration of iodine and thyroid extract.

2. In the second group the author places patients who have had the disease for a considerably longer time, with a more or less marked course, and comprising what he describes as "fairly typical examples of the disease that have existed, say, from four to eight years." The report here is not so favourable. The author states that recovery is slower, the period of enforced rest required is longer, heart not quick to regain its tone, and the reaction to serum treatment is slower and less decided. 50 per cent. may be cured or improved sufficiently to follow the usual activities of life without discomfort.

This group apparently represents the real Graves's disease, and as in all cases it is definitely stated that the treatment is combined with long rest and the "common-sense" medical remedies, and as many cases tend spontaneously to

improvement or cure, it is difficult to draw any striking conclusions as to the benefit derived from the serum itself.

3. In the third group are placed atypical cases, many of which present a mixture of Graves's disease and myxœdema, and have extended over a long period of years. The author says that he can draw no conclusions at all from the use of serum in these cases, as it is so rare that the serum alone can be relied on as the effective agent.

The most that it seems possible to say is that the serum does have in some, and notably in early cases, a beneficial effect, more particularly in cases of slight hyperthyroidism, but as regards the real typical disease of exophthalmic goitre we certainly cannot consider it to be in any way a final remedy.

In my next lecture I shall discuss the question of operative treatment of the disease, its advantages and disadvantages.

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A Clinical Lecture

ON THE

ELEMENTS OF PROGNOSIS IN PULMONARY TUBERCULOSIS.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton, on Nov. 12th, 1912,

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GENTLEMEN,—The subject of to-day's clinical lecture is not the prognosis of pulmonary tuberculosis but the elements of prognosis, the material facts from which we form an opinion of a patient's prospect of life and health, in pulmonary tuberculosis. Let me give you at once my reason for treating my subject in this way.

There are two prominent and diverse views of the expectation of life in pulmonary tuberculosis. In the eyes of the laity it is a fatal disease—"consumption." According to the clinical pathologist pulmonary tuberculosis is "the most curable of diseases," one which more often than all other grave diseases spontaneously ends in recovery. These statements, mutually contradictory but both in different respects correct, relate to the prognosis of pulmonary tuberculosis in general, the prognosis of phthisis from a comprehensive point of view. For a practitioner to express his opinion in these general terms, whether favourably or unfavourably, is obviously of no service to a patient or a patient's friends. He is asked to be specific, to say to which of the two groups—those that are fatal or those that are curable—the particular case in his opinion belongs, and to answer in detail a number of other questions respecting the future, to which I will refer presently. And in every instance he does give an opinion, whether it be well founded or not. A practical prognosis, a prognosis in the individual case before him, must be based on facts ascertained by himself from inquiry and observation. Experience, reading, intelligent study—in a word, knowledge of the subject—also have to be possessed by him to enable him to obtain, arrange, and weigh the facts. But he cannot build without materials. When he has ascertained the facts, not till then, he has at his disposal the *elements of prognosis in pulmonary tuberculosis*, the means by which he attempts to reach a correct estimate of the patient's future. It is these means that I propose to study with you to-day.

GENERAL CONSIDERATIONS.

I speak of "attempting" to reach a correct prognosis in pulmonary tuberculosis. It is always a difficult and often a disappointing proceeding. With all the facts of a case in our possession, the conclusion we reach proves too frequently to be false. Indeed, paradoxical as it may appear, we fail in prognosis most often because of the very number, variety, and different characters of the facts that we discover. Each of our observations has its own prognostic value, and most of them have a different value in different instances and at different times. We meet with an extraordinary variety in the severity, extent, seat, and form of the pulmonary lesions, and an extraordinarily variable, and therefore uncertain, course of the pathological process from month to month. No disease is so difficult to deal with in this connexion, and we have to confess that we too often find ourselves changing our forecast in both directions from time to time.

Pulmonary tuberculosis is a struggle for mastery between a pathogenetic microbe and the human organism. In the origination and progress of this disease, as in diseases of every kind, three factors are at work, all of which have to be taken into account prognostically. These are: (1) the specific or essential factor, the tubercle bacillus, without which, and without which alone, there is no tuberculosis; (2) the degree of the patient's immunity to it; and (3) the incidental circumstances of his life which favour either the first or the second of these.

1. *The Tubercle Bacillus.*

From the bacillus we naturally expect to learn much of prognostic significance. Attempts have been made to connect the severity of the process with the number, arrangement, and morphological characters of the bacilli. Unfortunately, observations on these points are of comparatively little or no assistance to us in prognosis. We hear of mild or benign strains of the tubercle bacillus, but I am assured by one of the highest bacteriological authorities in this country that no prognostic significance can be attached to an ordinary bacteriological examination of a tuberculous sputum: neither the size, shape, staining reactions, nor numbers give any help. All that it does at present is to prove that a case is tuberculous.

2. *The Degree of the Patient's Immunity.*

Disappointed in this direction, we turn to the second factor, the patient's immunity, the resistance of his tissues and blood to the bacillus, and along with this the provisions for repair of damage. The problem of reaching a prognosis in pulmonary tuberculosis practically resolves itself into an attempt to ascertain and estimate the vigour of local and constitutional resistance, or the degree of its failure, as the case may be. How can we do so? The value of human immunity to tuberculosis not only is extremely different in different individuals, but also varies greatly in the same individual from time to time, under changing circumstances of hygiene, work, weather and treatment. The facts that we study with a view to obtain this indispensable information fall into two classes which must now be fully examined. The first class relate to the patient's constitution, inherited and acquired—as it was, let us say, previous to tuberculous infection. The second class of facts are the clinical characters and course of the case, which we recognise as manifestations, and employ as measures, of the action and effects of the infection upon the patient.

The *patient's constitution* I may define briefly, in the present connexion, as the degree of his preparedness to protect and defend himself against the tubercle bacillus and to develop immunity, local and general, to its action. We estimate this with the greatest possible correctness in taking our record of the case. We make close inquiry, to begin with, into his family history, for, whatever may be the explanation of the fact, it is a fact established by the observation of my late colleague here, Dr. Theodore Williams, that if pulmonary tuberculosis have been

"inherited" immediately (by son from father) its course will be more active and more rapid and the prognosis correspondingly unfavourable. Next we ascertain his personal history antecedent to tuberculous infection, in particular whether he was strong or delicate as a child, boy and youth; how far his habits, occupation and recreations, his home and his place of work have been wholesome or the reverse, and the nature and severity of diseases from which he may have suffered. When we have completed these inquiries we ought to be able to make a fair estimate in what degree the man might have been expected to resist constitutionally invasion by the tubercle bacillus, and how far he is likely to oppose and limit its activity now. A record of essential delicacy, of poverty, misfortune or intemperance indicates low resistant power in the struggle that has commenced.

We now leave history for observation. The two methods of investigation are linked together by the patient's appearance and bearing. We note at a glance his build, complexion, manner and expression, and too often discover that delicacy of features, of frame as a whole and of chest in particular, and that temperament, which in the eyes of unprofessional observers forebode, not incorrectly, an unfavourable course of consumption. Two other facts relating to the tuberculous patient are considered by us at this stage of our inquiry as elements of prognosis—the age and sex of the patient. Estimated by the mean annual mortality per million living, the disease is most fatal in the years 20 to 40 or 50, but this is not a true estimate of the relative mortality of affected cases, which is greatest between 20 and 30. An important prognostic association exists between age and heredity. A liability to senile tuberculosis runs in families—that is, resistance to the bacillus breaks down at a late age, say 50, in certain near relatives, and it can be stated with confidence that the disease in the majority of these older subjects may be expected to run a comparatively slow and protracted course, although unfortunately not a course free from debility and depression. As for sex, the prospect of recovery appears to be less in women than in men, and pregnancy and parturition rank as highly dangerous influences.

The second class of materials for estimating the strength of the patient's resistance and its indications prognostically are *the clinical characters and course of the illness.* The symptoms, respiratory and other, local and general, are employed as evidences of the degree of activity of the bacillus and of the efficiency of the provisions for defeating it. Physical examination provides us with means of observing from the first, and of tracing from day to day, the local phenomena of attack and defence within the chest, each affording in its way some valuable indication of the prognosis. As the illness progresses and these symptoms and signs develop and vary, as complications arise, and associated disorders and diseases of other organs are discovered, we come to be possessed of a mass of facts bearing on the patient's prospects, which, as I have already said, is actually embarrassing by its very richness.

3. *The Circumstances of the Patient.*

There remains to be considered the third factor in the causation and development of the tuberculous process—the circumstances, present and prospective, of the patient. Some of these have been directly favourable to invasion by the bacillus, such as occupation, infected food and dirt; some have been directly unfavourable to resistance, such as poverty, misfortune, evil habits, certain ages, previous bronchial or pulmonary damage, and possibly climate and weather; and so prospectively the result of the case will necessarily depend, not only on the bacillus and on the man, but also on the circumstances under which treatment is being and will be carried on: his social position, his financial means, the necessity from which he may suffer to curtail the period of treatment with rest and freedom from the unhygienic surroundings in which his occupation lies. The bearing of each and all of these must be estimated. The circumstance of being married and the only support of a family is itself an important prognostic element in a man's case. Even the season of the year has to be reckoned with.

With these general considerations before our minds let me now try to find and disentangle the individual clinical facts that may be employed as useful elements of prognosis in an individual case of pulmonary tuberculosis.

THE ONSET: INCIPIENT PULMONARY TUBERCULOSIS.

I assume that the tuberculous process has commenced in the lungs, proved beyond question by presence of bacilli in the sputum, and that our opinion is required of the patient's prospects of recovery. Whether the onset has been sudden or insidious, the pronouncement of our diagnosis falls like a blow on patient and friends; and before even the all-important subject of treatment is raised, questions on prognosis are put to us, and we have to answer them as best we can: Is it a fatal case? What are the chances of recovery? What amount of permanent damage, of disablement for work, present or prospective, will there be? Must the prospect of life in a town, of entering the Civil Service, of marriage, be abandoned? And many more anxious inquiries.

We seek for an answer, not, we have seen, in the bacillus and its characters, but in the patient before us, and in the origin, symptoms, signs, and course of the pathological process which is active within him. Already from the moment of our introduction to the patient we have unconsciously begun to make a prognosis: we have formed some impression in that direction, favourable or unfavourable, from his appearance and his complaints. Whatever the value of this immediate estimate, we proceed to "take the case" in detail, and to collect and order the events in the patient's history, family and personal, bearing upon the strength of his constitution, which have to be analysed. To one class of facts occasionally elicited in this inquiry we pay particular attention. In reply to our questions a patient whose case presents all the familiar clinical features of incipient pulmonary tuberculosis may discover to us a history of tuberculosis in other parts of the body, such as the glands or the peritoneum, from which he recovered. Indeed, it is not at all uncommon to ascertain in this way that the lungs themselves have been affected years before, and that the case is one of recrudescence after long quiescence, not a case of incipient phthisis at all. The patient "was sent abroad as a boy," or "once had hæmorrhage," or "had several attacks of pleurisy." The prognostic importance of such information is obvious. Proving as it does recovery—possibly more than once—from active tuberculosis in the past, it serves as a reasonable indication of the patient's capacity to recover again, provided that no deterioration of constitution in the interval, or proof of such, can be discovered, and provided, let me add, that we remove the cause of this fresh development.

Symptoms of Incipient Cases.

From inquiry we proceed to personal observation of the symptoms of incipient tuberculosis. A high respiratory frequency, severe and persistent cough (particularly in the night), and great frequency of pulse are obviously unfavourable. With respect to the sputum, if it have made its appearance, the most important diagnostic character has been already mentioned—the presence of the bacillus. Hæmoptysis at the onset of pulmonary tuberculosis rarely has the evil significance of hæmoptysis in cavernous phthisis. It is true that in rare cases it ushers in a tuberculous process of extreme acuteness speedily ending in death. But, on the other hand, all of us must have been struck by instances of hæmoptysis, unquestionably tuberculous in causation, where after more than one return, probably with pyrexia, the attack has passed off and has been characterised from first to last by no physical signs of lesion. One is constrained to conclude in making this observation that the hæmorrhage from the lung was actually salutary, and certainly a hopeful prognosis may be ventured on under these circumstances.

Of special prognostic value are the degree and type of the attendant fever, for they are an index to the activity of the bacillus and to the reaction to its products. On this subject let me commend to your notice the published observations of Sir James Kingston Fowler. He has shown by his studies in the wards of this hospital not only that the degree of fever is a measure of the activity of the morbid process, but that marked pyrexia is always associated with an increase in the tubercular lesions; that a temperature gradually rising for a few days and then continuing high, with very slight morning remissions, is symptomatic of miliary tuberculosis in progress; and that the inverse type of temperature, in which the maximum is attained in the morning instead of in the evening, may mean general acute tuberculosis. Persistence of high temperature in spite of rest in bed is peculiarly

symptomatic of failure of resistance. Associated with pyrexia in occurrence and in significance are sweats and chills; the earlier the appearance of these the smaller the prospect of arrest short of local destruction. Debility, languor, loss of weight, and wasting of the body are evidences of activity of the infective process and relative insufficiency of resistance. Further evidence in the same direction is found, and prognostically ought to be carefully appreciated, in disorder of the elementary functions, particularly of digestion and assimilation, on which a favourable issue of the struggle so largely depends.

Consideration of the Earliest Physical Signs.

Leaving the symptoms of incipient pulmonary tuberculosis, let us next consider how far we can turn to our use in prognosis the earliest physical signs. They never fail to impress us. As we gradually elicit them the patient's prospects rise before our minds. We determine their kinds: whether significant of simple local infiltration associated with dry pleurisy, which is comparatively favourable; or of a local bronchial catarrh with peribronchial involvement, likely to persist indefinitely with little change, but varied by periodic aggravations; or of consolidation, which is calculated to proceed to softening. We carefully estimate the other characters of these morbid changes. Broadly regarded, the more limited the extent of the signs the better is the prognosis. If signs of miliary infiltration are universal the process will run a rapidly fatal course. Short of this distribution, the whole of one lobe may be involved; or, which is worse prognostically in more than simple arithmetical proportion, two or three lobes may present signs of infection; or, which is still more unpromising, both lungs may yield abnormal signs. But here let me offer you a word of caution. An unfavourable prognosis based on widely distributed moist sounds at the outset of tuberculosis is happily often belied. The area of reaction in the lung and pleura provoked by a small tuberculous infiltration may be remarkably extensive. Crepitations or small râles over the upper lobe and friction sounds over the lower lobe not uncommonly disappear in a few weeks, leaving behind them the physical evidences of a quite limited nidus at or near the apex, which may proceed either to soften or to fibrose. This possible limitation of the tuberculous lesion is one of many reasons for withholding a hasty or even an early forecast. Skiagraphy is of some assistance here. The *seat* of the lesion is another prognostic guide at this and every stage. Signs of advance in the pectoral region, towards or in the axilla or in the lower lobe all afford less hopeful indications than the more common apical distribution of the disease.

Next to the affected portion of the lungs there has to be considered *the condition of the non-tubercular portions.* They may be sound, and perfect soundness of one lung is always relatively reassuring. But instead of soundness we often find signs of chronic bronchial catarrh, of chronic bronchitis with emphysema, or of pleuritic remnants or effects, all of which are serious handicaps. The state of the heart also claims our attention, as discussed here a week ago by Sir Richard Douglas Powell.[1] Congenital affection of the heart is a peculiarly ominous association. I need not do more than refer to the effect on our prognosis of discovery of diseases of the other great viscera—nephritis, for example—which we occasionally meet with. All are calculated to lower vital resistance, and in this way they indicate an unpromising forecast. The condition of the blood, including the opsonic index, may also be investigated.

The Circumstances of the Patient.

And now, having completed our examination of the patient, we have to inquire into his circumstances. Whatever we may have made out so far, his future in great measure will depend, as we have already seen, on the third factor concerned in the orgin and development of his disease. Is he rich or poor? Is he living and will he live free of anxiety, or the opposite? Might he return to work, or does the nature of his illness compel him to resign a congenial and remunerative appointment? Is he engaged to be married, with a prospect now of disappointment? These and similar considerations are vital elements in the prognosis of a case of incipient pulmonary tuberculosis, although they are, as it were, quite apart from the pathological process itself. In great measure they relate to the practicability of treatment in its most approved form and for a necessary length of time. And this brings to our mind another consideration of first importance prognostically. Has full advantage been taken of such treatment from the beginning of this case? I have been assuming with you that we are seeing and examining it at its very onset. But you know that this is a rare experience. Far more commonly the illness has been in progress for weeks or months. Now it is the opinion of all authorities on the treatment of pulmonary tuberculosis that the more early treatment is commenced the better the prospect. Developing this consideration in its prognostic bearings, we note whether on the one hand there be evidence of improvement already under unfavourable circumstances of hygiene and of treatment as a whole—a hopeful fact prognostically; or whether on the other hand the patient has been doing badly in spite of entirely hygienic surroundings and correct management—a fact of unpromising significance.

I have now discussed with you most of the facts that we may and should make out in connexion with a case of incipient tuberculosis, and try to turn to account in answering the difficult question of the patient's future. It appears that the issue of the struggle that has commenced, as in a war of invasion, mainly turns on the strength of the provisions for resistance, on preparedness for the encounter, revealed by inquiry into the man's family and past personal history. When the battle has been fairly joined, the observations of the first few weeks may serve to give us some notion of what the result will be. The characters of the symptoms and signs are the evidences of success, present and reasonably prospective, on either side. The opening phase of pulmonary tuberculosis is one of uncertainty, expectancy, anxiety, of hope, rather than of assurance in either direction. Time is necessary for autogenous immunity to manifest its value, and I am compelled to admit that at the onset of pulmonary tuberculosis—that is, until the course of the case has been watched for some weeks—useful prognosis cannot be given.

THE DISEASE ESTABLISHED.

When the disease is established the familiar signs and symptoms of consolidation, caseation, softening and excavation may follow each other closely in the course of a few weeks. More often advance is far more slow—ordinary chronic phthisis. In our attempts at prognosis we have now to observe and employ as elements an immense number of facts relating to the extent, local distribution, form, severity and course of the pathological process, and these changing from week to week.

The questions put to us now are of much the same character as at the onset: Any hope, any prospect of return to health, and, if so, when? of fitness to live at home and to work? Too often it is the plain question of the shortness, not the length, of life.

The elements of prognosis in active pulmonary tuberculosis may be compared with those which we have examined at the onset. The numbers and characters of the specific factor, the bacillus, are still of little or no practical value as guides to the future. We have to search the patient for the materials that we require. The vigour of the reaction of the lungs and constitution to the bacillus is estimated by the signs and symptoms, as in the first stage; by these in relation to duration and treatment. Let me examine these elements in detail.

The severity and other characters of cough, the amount of sputum, the presence in it or not of elastic fibres, pus, blood and micro-organisms, and the occurrence of free hæmoptysis as such, are direct materials on which to base an opinion. The degree and type of the fever are again important.

The Prognostic Significance of the Temperature.

In addition to its prognostic significance in general, as at the onset, Kingston Fowler has shown that the temperature is a valuable guide to three principal types, respectively, of the fully established disease—caseation with excavation, fresh miliary infiltration, and a combination of these two processes with more or less insufficient repair. When the temperature is persistently of nearly uniform height, and of daily range from normal or subnormal in the morning to 100° F. or more in the evening, we may diagnose active caseation and excavation, with no immediate prospect of

[1] THE LANCET, Nov. 23rd, 1912, p. 1415.

arrest. If this type of pyrexia gradually declines in height and daily range, the prognosis improves. The process of local destruction may presently be completed, and the affected area of lung finally shelled-out, as it were; return of temperature to normal assures us that such is the result. This is an exceedingly striking form of pulmonary tuberculosis, but unfortunately a rare one: the symptoms and signs indicating an apparently hopeless prognosis may almost suddenly disappear, and those of a sharply defined dry cavity remain—evidences of successful elimination of the diseased portion of lung, limitation of the tuberculous process, and not rarely of permanent arrest of the disease as a whole. On the other hand, when the pyrexia definitely increases in height, or returns after defervescence, and presents along with absolute height a less deep daily remission, we recognise in it evidence of fresh miliary growth—that is, spread of tuberculous infection locally or in other parts of the same or of the other lung, and the development of a further period of prognostic anxiety. In a still larger number of instances, in that type of the disease with which we are familiar as "chronic phthisis," an almost uniform rise of temperature from normal or subnormal in the morning to 99° or thereby in the evening tells us that the two processes of fresh growth and fresh destruction are proceeding side by side in slow protracted fashion with a process of repair in the forms of fibrosis, adhesion and limitation. What the issue of this common type will be is a prognostic question which we answer to the best of our ability from month to month and from year to year, with the assistance of the many other facts than the fever which are at our disposal, and of our knowledge of the course of the case up to date and of the means of treatment that the patient can command.

Other Elements of Prognosis in the Active Phase.

In all these three types of pyrexia of established pulmonary tuberculosis, and in every instance, the amount of exercise taken and the relation of the degree of fever to the bodily strength, body weight, pulse, and general appearance are carefully ascertained before an opinion based on it is given. Morning rigors and night sweats, wasting, increasing debility, a cachectic countenance, lax or inelastic integuments on which the stethoscope leaves its mark, instant muscular reflex to every percussion stroke on the chest (myoidema), thrombosis, and œdema are all serious prognostically. While anorexia and indigestion are unpromising symptoms, preservation of an excellent appetite and a good digestion, which enable the patient to take and apparently to assimilate abundant nourishment, are often deceptive prognostically. Both may be maintained up to the moment of death. And I need not remind you that the same remark applies to the patient's spirits and hopes.

Physical examination intelligently employed furnishes us with abundant prognostic materials in the active phase of pulmonary tuberculosis. The familiar signs of general miliary infiltration are fatal omens. Indeed, as long as there are signs of even local spread of tuberculous growth a favourable opinion cannot be entertained. Physical evidences of consolidation, softening and cavitation are naturally also bad; but, as I have just told you in connexion with the types of fever, these processes occasionally are sharply limited and end in a well-localised dry vomica. And we are all acquainted with instances of preservation of life and fair enjoyment of health and usefulness in persons with extensive cavernous phthisis.

In active tuberculosis of the lungs, as at its onset, in addition to the existence of morbid physical signs, we judge of the prognosis by their extent, by their distribution, and by their precise situation. These are of endless variety in different cases, and with this multiplication of facts the difficulties of making a correct forecast increase. Here also we must not fail to estimate by physical examination the value of the "unaffected" but often variously altered portions of the lungs.

Prognosis in the Established Disease.

At the point which we have now reached I must ask you to reconsider with me and partly modify the picture of active tuberculosis of the lungs which I have just drawn. For the purpose of graphic presentation, even of orderly mental appreciation, we have had to set up phases, "stages," groups and types of the disease which are not entirely natural. A few instances fall under these heads respectively with exactness. But the majority of cases of chronic pulmonary tuberculosis present characters belonging to them all. As said under pyrexia, the commonest class of cases under observation in a sanatorium, and perhaps even in our hospital, consists of patients with temperature but little over normal, the weight maintained or rising, cough and sputa moderate, strength sufficient for moderate exercise, and scattered signs of local destruction and repair side by side over different areas, and of compensatory changes in lung and chest. The forecast in these common instances is indeed difficult to make with exactness. And when, in addition to the symptoms and signs as such, we study the course of chronic pulmonary tuberculosis, variable and uncertain as it is, improvement interrupted by recrudescence on different scales and in different forms, and at the best a condition of invalidism throughout, few of us would venture to give a confident prognosis in any case. Early and frequent interruption of improvement or actual recrudescence is a measure of the slightness of incident sufficient to disturb the balance, and serves as a useful indication of the probability of recurrence in the future.

It is in the active phase of phthisis that we meet with the principal *complications*, each with its own prognostic indication—pneumothorax, laryngeal invasion, hæmorrhage from the walls of cavities, intestinal infection, all more or less ominous of evil. On these I need not dwell.

In this review of the characters and course of active pulmonary tuberculosis I have been forced to dwell on their more unfavourable indications. But we must not forget that, after all, much depends on the circumstances of the patient, more especially whether he can secure the advantages of proper, continuous and prolonged treatment, as already discussed in connexion with the outbreak of the disease. Examined as a whole for materials on which a forecast can be based, the fully established phase of pulmonary tuberculosis presents us, as does the onset, with difficulties which we confess we cannot always so far overcome as to be able to speak with confidence. But it is different in one respect from the onset. The general course of the case is now ascertained in relation to treatment and other known circumstances, favourable and unfavourable. It has afforded us abundant opportunities to estimate far more correctly than was possible at the invasion the relative powers of the bacillus on the one side and of constitutional immunity and local repair on the other side. For good or for evil, immediate or remote, the result of the case is practically determined now, and with attention and judgment we sometimes can forecast it correctly.

QUIESCENT PULMONARY TUBERCULOSIS.

It is a relief to turn from these two phases of pulmonary tuberculosis, full as they are of uncertainties, difficulties and disappointments, to the consideration of the disease in its quiescent forms and phase. The materials now at our disposal, to be used as elements of prognosis, are not only present symptoms and signs, but also definitely settled facts in the patient's tuberculous history.

To begin with, we find that we are dealing with a relatively favourable case. Success of resistance and repair has been proved, and this in relation to the means of treatment employed. Besides, we may have had the advantage of watching the establishment of immunity. We may have seen the morbid process arrested almost at its commencement, or after months or years full of changes in both directions. In other instances, and these not few, it is during quiescence that we are introduced to the case. We discover physical signs of an old healed lesion in the routine investigation of a patient for some altogether independent disease, or in the course of examination for life assurance. Or, again, it is hæmoptysis, or debility, or cough that brings a patient to us with what in our haste or thoughtlessness we call incipient tuberculosis, as I have already mentioned, but is in reality recrudescence of a long quiescent lesion. Cases of this kind, when new to us, are fruitful sources of erroneous diagnosis, and necessarily of corresponding errors in prognosis. In no instance of tuberculosis should we fail to inquire closely for historical evidence of a previous attack.

The condition of the subject of quiescent tuberculosis is one of relative health with unsoundness. Men commonly are able to work; women may marry and bear children, though not without risk. Many men and women are

valetudinarians, their activities and enjoyments reduced to a low level. Repair in the form of fibrosis and compensation in the form of emphysema are partly accountable for this disablement.

The Signs and Symptoms in Quiescent Cases.

To find materials to serve as elements of prognosis in this phase we must investigate the case as methodically as before. The bacilli again prove of no service to us. Even a new question which arises—namely, as to the relative expectation of life in quiescent pulmonary tuberculosis with and without disappearance of bacilli from the sputum—unfortunately cannot yet be answered with assurance. Once more we have recourse to the patient. Most often he presents an anæmic, wasted, cadaverous appearance, of less unfavourable indication prognostically than might be expected. Other patients, with the plump, fresh appearance familiar after sanatorium treatment, may be much less "good lives." Of cough and expectoration there is little, possibly none; and the less there is the better is the prospect. Hæmoptysis in quiescent phthisis furnishes conflicting and in some respect paradoxical indications prognostically. In quite a number of these patients, presenting patches of fibrosis only, it is recurrent, making its appearance unexpectedly in the midst of perfect health. It may be of every possible amount, even alarmingly profuse, coming in single hæmorrhages every few hours or every few days for one or two weeks, and it then as a rule declines in frequency and in quantity, leaving the patient exhausted but free (unless in exceptional instances) from recrudescence of active tuberculosis. The important point to us is that this type of case, sometimes called "hæmorrhagic phthisis," is prognostically favourable. Not only do these patients not perish of hæmorrhage: they live for years, to have fresh attacks of the same character again and again. On the other hand, hæmorrhage from a chronic cavity is only too often immediately fatal, disappointing a previously favourable forecast. As for other symptoms in arrested phthisis, fever is now an affair of the past, and with it have disappeared chills, sweats and wasting. The physical signs are recognised broadly by their "dry" character, along with the familiar evidences of fibrosis, adhesion, retraction of the parietes, visceral dislocations and emphysema; and according to their degree are accepted by the experienced observer as of favourable omen instead of the opposite. The discovery of a well-defined line of demarcation between an affected area of limited extent and normal lung is especially encouraging. And in this phase of the disease, as much as during its activity, we never fail to ascertain the value of the non-tuberculous portions of the lungs. After all, as we have seen, it is on these that the patient's life depends. Emphysema and bronchial catarrh are serious additions to disablement and to danger that have to be reckoned with. In these subjects, again, as life is maintained and age advances, disease has to be looked for in other organs—cardio-vascular degeneration, chronic nephritis, gout, amyloid changes. In this connexion it should be noted that some cases of quiescent phthisis give a history of syphilis, which may account for the disposition to fibrosis, and *pro tanto* may be a favourable element prognostically.

The Prognostic Problems in the Quiescent Phase.

The prognostic questions that are put to us are of a new order when the quiescence of a case has been fully recognised. First, Will the cure last? In answering this question we are careful to take into consideration the patient's past as well as his possible future. Has quiescence already lasted for months or years? Has it been uninterrupted? In particular, has it been maintained in spite of unfavourable conditions of living and of work? Or, on the contrary, have health and freedom from pulmonary symptoms been preserved only by observance of extraordinary care, and broken down once and again on slight provocation? Prognosis here is based on retrognosis.

Having settled this consideration we look ahead. Since the disease is not "cured," but dormant and smothered only, it will reawaken and revive if the patient, however well he may be now, disregards the hygienic treatment under which he has recovered, and returns to conditions of life unfavourable once more to permanence of immunity and repair. We make this clear to the patient, telling him in reply that arrested pulmonary tuberculosis is a state of realised hope but of continued insecurity; and that the future rests mainly with himself, depending as it will do on the way in which he may live and attempt to work. If proper provision be made in this direction, and if reasonable allowance be made for accidents and eventualities that cannot possibly be foreseen, including possible complications such as hæmorrhage from pulmonary aneurysm, a cheerful prognosis may be given. Age or efflux of time, whilst it increases the risk of ill-health and death from some other diseases, as we have seen, has the reverse effect on quiescent pulmonary tuberculosis. Every year safely passed without recrudescence lessens the risk of such. But here again we must forecast cautiously. There are but few persons that have regained health and reasonable strength, after losing precious time at the age of natural activity, who are not tempted to forget or set aside the conditional character of our favourable prognosis. Business men in particular are eager to resume work in offices, too often crowded and otherwise insanitary. I need not add that with the larger percentage of the subjects of chronic phthisis—for example, the patients in this hospital—return to work is not a matter of choice, but an urgent necessity—usually before it is safe.

In this statement I have suggested an answer to the next inquiry commonly put to us: "How far am I disabled, how far fit to resume full work?" And if the patient, in our opinion, cannot safely resume his occupation because it is of a kind provocative of recurrence of active tuberculosis, the next point raised is, What other work, say in the country, or in another climate, is he fit to carry on? These are specimens of difficult prognostic problems put to us—anxious problems to solve, for in doing so we make ourselves responsible for the patient's future career as well as for his health, for his living as well as for his life. At this stage of chronic consumption the question of marriage, suspended for a few years, also may be reopened. From a purely prognostic point of view we do not forget the unfavourable influence on immunity of the increase of responsibility, financial and moral, in which marriage and paternity involve a patient. Marriage may be anticipated to prove of benefit in chronic consumptives of independent means. But in the great majority of cases the opposite prognosis must be given. In the event of recrudescence an unmarried patient can resume means of treatment denied to a man with a wife and family.

TYPHOID AND PARATYPHOID VACCINATION WITH LIVE ATTENUATED VACCINES; MIXED VACCINES.[1]

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ANTITYPHOID inoculation was introduced, as is well known, in 1897 by Sir Almroth Wright, who in this way placed in our hands the most powerful weapon we have at the present time in the fight against enteric fever. The medical man practising, like myself, in a tropical country where typhoid fever is one of the most terrible scourges can appreciate to the full extent the great practical importance of Sir Almroth Wright's discovery, which will rank among those which are of lasting benefit to mankind. Among the collaborators of Sir Almroth Wright the name of Colonel Sir David Semple must be mentioned, and among the more recent workers Sir William Leishman, to whom we owe the most useful modification in the preparation of Wright's vaccine. Sir William Leishman made the important observation that the lower the temperature at which the bacilli are killed the higher was the immunising power of the vaccine. Hence this is now prepared by heating the cultures at 53 instead of 65, as formerly. Major Harrison, Major Cummins, and many other officers of the Royal Army Medical Corps have carried out much important experimental work on the subject. Interesting investigations have also been made by Anderson Smith, Russell, and many others. About the same time as Wright in England, Pfeiffer, and later Kolle, carried out a somewhat similar work in Germany. These two observers used emulsions of typhoid bacilli grown on agar and killed

[1] A paper read at a meeting of the Society of Tropical Medicine held on Dec. 22nd, 1912.

by heat. Other vaccines which have been used are the nucleo-proteid vaccine of Galeotti and Lustig, the vaccine of Shiga-Sclavo, the vaccine of Vincent. All these vaccines are dead vaccines.

Live vaccines; historical.—In 1901–02, working in Bonn under Professor Kruse on the subject of typhoid agglutinins and immune bodies, I noticed that rabbits were much more rapidly immunised by injecting subcutaneously living cultures than dead ones. A single subcutaneous inoculation of one or two cubic centimetres of living typhoid broth culture induced a degree of immunisation to obtain which four, six, and even more inoculations of dead cultures were necessary. It is from that time that I have always been convinced in my mind that living vaccines—provided their inocuity be demonstrated—are preferable to dead vaccines. In 1904, in Ceylon, I made my first researches in man with live attenuated vaccines prepared by the method presently to be described. I inoculated myself and 15 of my laboratory attendants, servants, and coolies who volunteered. In 1908 I published a short paper on the subject in local medical journals and in the Ceylon Medical Reports. In 1909 I published in the *Centralblatt für Bakteriologie* an article in which I came to the conclusion that vaccination with live attenuated cultures was harmless and was probably giving a higher degree of immunisation than dead vaccines. In that paper and in a communication at the Bombay Medical Congress (1909) I gave also the results of my experiments on the subject of mixed vaccines.

In 1911 Metchnikoff and Besredka made the very important discovery that chimpanzees could not be vaccinated against typhoid fever with dead vaccines, while complete immunisation could be easily obtained by live vaccines. The vaccination with live vaccines was quite harmless, but the general reaction was rather severe. To prevent this severe reaction Metchnikoff and Besredka introduced a live sensitised vaccine—viz., the living typhoid bacilli are sensitised by mixing them with horse typhoid immune serum. Metchnikoff and Besredka have used recently their sensitised living vaccine in man, in a few individuals, with good results; and Alcock has tried it on a large number of people, studying the action of the vaccine very completely and obtaining also very good results. A great advantage of this vaccine would be the almost complete absence of local and general reaction after inoculation. The only complication observed by Broughton-Alcock was an abscess developing at the place of inoculation in a woman, but a traumatism from which she suffered may have had an indirect part in causing the abscess. From the pus the bacillus typhosus was isolated.

Method of preparation of attenuated live vaccines.—Tubes containing 10 c.c. of broth are each inoculated with two loopfuls of a 48 hours old agar culture of a non-virulent typhoid strain which has been kept alive in the Ceylon laboratory for several years. The broth tubes are kept in the incubator at 35° C. for 24 hours; they are then placed in a water bath at a temperature between 49° and 50° C. for one hour, after which the vaccine is ready for use. It can be standardised by using Wright's blood method, films of course, or by making plates in the same manner as for counting the number of bacteria in a sample of water, either before the heating process or after; of course, the vaccine must be diluted with sterile broth, or too many colonies will develop on the plates. It is interesting to note how little the number of germs varies if the same sized loopful is always used, if the tubes contain exactly 10 c.c. of broth, and if the tubes are kept at exactly the same temperature and incubated for exactly the same length of time. We all agree, I think, that exact methods of standardisation do not so far exist; fortunately, in practice, provided a certain minimum sufficient quantity of vaccine be inoculated, it does not matter very much, within certain reasonable limits, what dose is given. Friedberger has demonstrated in the lower animals that when a siugle dose is given—provided a minimum amount be injected—the degree of immunisation is the same as that obtained by a dose many times larger.

Dose and method of vaccination.—For an adult I used to give 10 minims the first time and 20 minims the second; now that I standardise the vaccine by Wright's method I give 500,000,000 the first inoculation and double the dose the second inoculation. Thin individuals and young women receive a little less. Children I have never done, but I should advise half to one-quarter of the adult dose. The interval between the two inoculations is one week. The inoculation of the vaccine is followed by a local and general reaction, as is the case with dead vaccines; in some cases the reaction may perhaps be a little more marked. Three or four hours after inoculation the region of the arm where the injection has been made becomes painful and red, and fever supervenes, which does not last longer, as a rule, than 24–36 hours, and does not in most cases incapacitate one for work. As I do not believe that the immunisation given by vaccines, dead or alive, lasts in man very long, I generally advise people to be vaccinated once every two years, or even once a year.

Innocuity of live attenuated typhoid vaccine.—The objection to the use of live cultures for inoculation is that they may give rise to serious symptoms, and may possibly make typhoid carriers of the inoculated persons. Morgan's experiments in rabbits are quoted to show the danger of making typhoid carriers. Morgan, and previously Backstein (1891), Keyser, Doerr, and others, have, in fact, succeeded in making rabbits typhoid carriers by using living typhoid cultures. Morgan, to attain this object, inoculated intravenously 5 c.c. of live virulent cultures. The result of Morgan's interesting experiments do not apply, it seems to me, to the method of typhoid vaccination I am describing. First of all, my vaccine is made with a non-virulent strain; secondly, it is attenuated by heating it to 50° C. for one hour; thirdly, it is injected subcutaneously and not intravenously; fourthly, the amount injected is, in proportion, enormously less. The injection of a dose of 5 c.c. into a rabbit corresponds to an injection of a dose 25 times larger in man; no one would inject 4 ounces of live vaccine—or dead vaccine for that matter—into the veins of man. In my experience rabbits inoculated subcutaneously with 1 or 2 c.c. have never become carriers. Metchnikoff and Besredka have not found that chimpanzees inoculated with live non-attenuated cultures have become carriers. But after all the most important test is the human test; and this, in my experience, clearly shows that the attenuated vaccine is harmless, and does not produce typhoid carriers. Before using it on a fairly extensive scale I inoculated, eight years ago (1904), myself and 15 of my attendants, servants, and coolies who volunteered for the experiment; none of us experienced any severe symptom, and none of us became a typhoid carrier; and it is to be noted that at the time the vaccine was prepared by heating at 50 *virulent* cultures of typhoid, and not avirulent ones such as I use at present. In one case a fever developed after four days from the injection which lasted five days; the microscopical examination of the blood proved it to be of malarial origin.

The director of the Ceylon Government Chemical Laboratory, Professor Browning, kindly submitted himself to repeated inoculations of live (attenuated) typhoid vaccine, receiving each time at first 1 c.c. of it; later 1½ c.c. and 2 c.c. The first inoculation caused a little local reaction and a slight degree of fever; the second, a week later, induced a slight local and general reaction; the third, fourth, and fifth inoculations, always given at a week's interval, were practically not followed by any reaction either local or general. After the sixth and seventh the local reaction was more severe, and Professor Browning experienced a general malaise for 24 hours, but no fever. I then stopped the inoculations for three weeks, after which he had another one which did not give rise to any symptom. A couple of months later he began again being inoculated at intervals of one or two weeks; during 18 months he had altogether 53 inoculations. He remained always in perfect health although 24 of the later injections consisted of 2 c.c. each, and were of mixed live vaccines, two parts typhoid, one part paratyphoid A, one part paratyphoid B. Local and general reactions during the later period were generally absent; extremely slight when present.

Comparison between the immunisation power of dead and live typhoid vaccines.—That in rabbits a higher degree of immunisation is obtained by live vaccines than dead ones there can be no doubt, as I have already stated previously. As regards higher animals, of the greatest importance is Metchnikoff and Besredka's observation that in chimpanzees the degree of immunisation obtained by dead vaccines is practically *nil*, while the inoculation of live cultures completely protects the animal from experimental typhoid fever. As regards the immunisation obtained in man by using live attenuated vaccines, I must state that, unfortunately, I have not been able to study day by day the amount of protective

substances produced in inoculated individuals, as done in such a thorough and scientific manner by Sir William Leishmann and his co-workers in connexion with Wright's vaccine and its modifications, nor am I in a position to give large and elaborate statistics. I am the first to regret it; but lack of time, pressure of other work, and attending to many routine duties prevented me from doing so. I have, however, made a few experiments, investigating in several individuals the amount of agglutinins produced, and in a few the opsonic index. Eight to ten days after the first inoculation a certain amount of agglutinins appear in the blood and the opsonic index is higher. The amount of agglutinins is variable, but I have never observed a very high agglutination limit. It is higher, however, in my experience than in persons inoculated with dead cultures. In fact, in Ceylon it is only exceptional that I have noted a high production of agglutinins in people inoculated with dead vaccine. I am well aware, of course, that this is not the experience at home.

Some observations on Professor Browning, who had altogether 53 inoculations, may be of interest. In him agglutinins began to appear in the blood ten days from the second injection, three days after the third. (1 in 20 positive, 1 in 40 bacilli immobilised, but no clumps.) Four days after the fourth inoculation agglutination limit was 40; after the fifth inoculation the agglutination limit was only 20; and after the sixth and seventh hardly 10. It increased again to 20 after the eighth inoculation. After the fifteenth it went up to 80; since then it has always varied between 20 and 40.

Statistics.—For the reasons I have already stated I am not in a position to show any properly drawn-up statistics, but the following rough data may be of interest:—

Persons Inoculated at Various Dates before Feb. 1st, 1911, whom I have been able to follow. Results during the period between Feb. 1st, 1911, to March 31st, 1912, when I went on leave.*

Method of vaccination.	Number of persons inoculated.	Cases of typhoid among the inoculated.
Both inoculations with dead vaccine.	250	4 cases (no death).
Both inoculations with live vaccine.	294	1 case ,,
First inoculation with dead vaccine; second with live vaccine.	260	1 case ,,

* The total number of persons inoculated is of course very much larger (over 2000), but some people get transferred to other colonies, and passengers and tourists, of whom I have inoculated a great many, leave the island after a very short time and cannot be traced.

Keeping properties of the live attenuated vaccine.—As regards the *number of living germs* present it is rather surprising to note that this does not vary much in countings made at different intervals during a period of five months, whether the vaccine is kept in the ice-box (10°–15° C.) or at the room's temperature (in Ceylon 28°–32° C.). This is shown by the following experiments, which I did with the assistance of Mr. E. Burgess, to whom I wish to express my thanks.

A. Typhoid broth cultures (10 c.c); 18 hours at 37° C., followed by one hour in water-bath at 50° C., after which the tubes were sealed in flame and stored in ice-box 10°–15° C.:—

Tube 1. No. of colonies per loopful at time of sealing ... 1283
Do. do. after 14 days 1181

Tube 2. No. of colonies per loopful at time of sealing ... 1461
Do. do. after one month ... 1300

Tube 3. No. of colonies per loopful at time of sealing ... 1161
Do. do. after five months ... 1008

B. Vaccines prepared as above, but in sealed tubes stored at room temperature (28°–32° C. in Ceylon):—

Tube 4. No. of colonies per loopful at time of sealing ... 1120
Do. do. after 14 days 1050

Tube 5. No. of colonies per loopful at time of sealing ... 1221
Do. do. after two months ... 1130

From the above it will be seen that during storage there is an extremely small decrease of living germs. It is interesting to note that practically the same results are obtained with paratyphoid vaccines A and B. It is to be noted that the sealed tubes were large ones, the ordinary test tubes. It remains to be seen whether the same results are obtained by using small 2 c.c. tubes.

Important points to investigate are also the following: 1. Is the stored vaccine as rich in vaccinating substances as fresh vaccine? 2. Is the stored vaccine as harmless as the vaccine freshly prepared?

As regards question 1, from the few experiments I have made in rabbits it would seem that the vaccinating power of the vaccine after two months' storage is good; and this after all is not surprising, considering that, as already remarked, the number of live germs present in live vaccine stored for two months is very little less than at the time of its preparation. As regards inocuity, in rabbits it does not give rise to any disturbance whatever; as regards the action in man, I have inoculated it in ten persons who had volunteered without having on the average more severe reactions than when using freshly prepared vaccine.

Live attenuated cholera vaccine.—On this vaccine I will only say a few words. First of all it should be stated that a live cholera vaccine is no novelty. So long ago as 1885 Ferran prepared a live cholera vaccine. I first tried preparing an attenuated live cholera vaccine in the same manner as the attenuated typhoid vaccine—viz., by using broth cultures heated at 50° C. The vaccine so prepared, however, was practically not a live vaccine, as each cubic centimetre of it contained only, on the average, five living germs. I then prepared the vaccine by heating broth cultures at 45° C. and 48° for an hour. With this procedure a much larger number of living germs was retained. After many trials I now prepare the vaccine as follows: An emulsion is made into 10 c.c. of peptone-water of two agar cultures 48 hours old, and this emulsion is heated at 48° (vaccine No. 1) or 45° (vaccine No. 2) for one hour. This vaccine should be used soon after preparation, or at least a few days after, the germs being as a rule all dead within a month in vaccine heated at 48°, and in two months in vaccine heated at 45°. The dose is ½ c.c. the first time and 1 c.c. a week later. The local and general reactions are much more severe than with the dead vaccine. There is fever and general malaise for 48 hours. After 8 to 10 days in most cases there is well-marked production of agglutinins. In fact, we used the blood of one of the inoculated coolies for the diagnosis of vibrios found from suspected fæces. It is to be noted, however, that in some individuals the production of agglutinins is very small, and even in the cases in which such production is well marked it varies greatly—one day the agglutination limit being very high, a few days later very low.

Live attenuated dysentery vaccine.—The same method of preparation is used as the one described to obtain live attenuated typhoid vaccine, but broth cultures should never be used in the preparation of a dysentery vaccine as, even if killed at 55–60° C., they give rise to an extremely painful infiltration at the place of inoculation, as shown by Kruse, Shiga, and myself. I use peptone-water cultures heated at 50° C. of the Shiga-Kruse bacillus or a polyvalent vaccine prepared with several varieties of the germ; but the experiments made being few, I am not in a position to say anything definite on such dysentery vaccines. Much further investigation is required.

Mixed vaccines.—I demonstrated in 1902[2] that by inoculating an animal with two different bacteria at the same time the blood produced agglutinins and immune bodies for both, and that the amount of agglutinins and immune bodies for each germ was about the same as in the animals inoculated with one germ only. For example, inoculating a rabbit at the same time with B. typhosus and a B. pseudo-dysentericus I. (Kruse) the blood of the rabbit developed the same amount of agglutinins and immune bodies for the B. typhosus and the B. pseudo-dysentericus as control rabbits inoculated with typhoid only and control rabbits inoculated with pseudo-dysentery only. I demonstrated that even inoculating a rabbit with three different micro-organisms (B. typhosus + B. pseudo-dysentericus No. 1 Kruse + strain of B. coli communis) the amount of agglutinins and protective bodies elaborated for each germ was nearly the same as in animals respectively inoculated with one germ only. During the course of these experiments I was able to confirm that when the immunisation is obtained by a single inoculation, provided the minimum dose

[2] Zeitschrift für Hygiene.

sufficient to obtain the maximum immunisation is given, the amount of agglutinins and immune bodies elaborated by the inoculated animals is not in proportion to the amount of cultures injected. A series of rabbits inoculated with 2 c.c. of typhoid cultures will give the same average agglutination limit and the same amount of immune bodies as a series of rabbits inoculated with 4 c.c.

Since 1905 I have experimented with several mixed vaccines in man, of which the principal ones are a typhoid + paratyphoid A + paratyphoid B vaccine, and a typhoid + dysentery Kruse-Shiga + dysentery Flexner vaccine. I will limit my remarks to the typhoid-paratyphoid vaccine, but I may be allowed to note that anyone wishing to experiment with mixed dysentery vaccines should be careful always to use pepton-water cultures, as broth cultures of dysentery give rise to an extremely painful infiltration at the point of inoculation.

Mixed typhoid-paratyphoid vaccine.—The mixed vaccines are either dead vaccines, the cultures being killed in the usual way by heating at 55°, or live attenuated vaccines, by heating the cultures at 50° for an hour. Notes on the subject of mixed vaccines may be found in my old publications in the *Centralblatt für Bakteriologie* (1909), in the Transactions of the Bombay Medical Congress (1909), and in the Ceylon Medical Reports. During recent years I have used rather extensively both the dead mixed vaccine and the live attenuated one. The preparation is simple: several tubes containing 10 c.c. of broth each are inoculated with two loopfuls of an agar culture of typhoid 48 hours old, other tubes with two loopfuls of paratyphoid B, and others with two loopfuls of paratyphoid A. All the strains I use are non-virulent. The inoculated tubes are kept for 24 hours in the incubator at 35°. These cultures are heated in a water bath at 55° (dead vaccine) or 50° (live attenuated vaccine) for one hour; they are then mixed together in certain proportions in sterile petri dishes: two tubes (20 c.c.) of typhoid, one tube (10 c.c.) of paratyphoid B, and one tube (10 c.c.) of paratyphoid A. The mixed vaccine consists of two parts typhoid, one part paratyphoid A, and one part paratyphoid B. I used to give 10 minims the first time and 20 or more the second. Now I standardise by counting the germs before mixing and give the following doses: the first dose consists of 300,000 millions typhoid, 150,000 millions paratyphoid A, and 150,000 millions paratyphoid B. At the second inoculation (one week later) a double dose is given, and much larger doses can be safely injected. In the case of mixed vaccines I recommend a third inoculation a week after the second and of the same or larger dose.

I have used both the dead and the attenuated live mixed vaccine fairly extensively, and can say that they are both harmless. I may point out that in the case of Professor Browning, who had 53 attenuated live vaccine inoculations of typhoid, the last 24 were of an attenuated mixed typhoid—paratyphoid A—paratyphoid B vaccine. The live mixed vaccine may occasionally give rise to a slightly more severe local and general reaction than the dead one. In rabbits these mixed vaccines—especially the live ones—induce a certain amount of protective substances for the three germs; but a fact worth noting, and which has also been noted by Major Cumming, is the small amount of specific agglutinins often elaborated for B. paratyphosus A. In some cases the agglutinins present for B. paratyphosus B were in larger amount than any other; but, as shown by the absorption test, not all of the B. paratyphosus B agglutinin was specific. Professor Browning's blood when I left Ceylon showed the following agglutination limits: B. typhosus, 40; B. paratyphosus B, 80; B. paratyphosus A, 20.

Conclusions.—1. The use of live attenuated vaccine prepared according to the method introduced by me in 1904 and published in 1909 (*Centralblatt für Bakteriologie*) is harmless. In preparing the vaccine the strain used should be non-virulent but rich in antigen, as found out by animal experiments. 2. Such vaccine in the lower animals, and probably in man too, gives rise to a higher degree of immunisation than obtainable with dead vaccines. It must be stated, however, that in man the immunisation obtained by two inoculations of this vaccine or any of the dead vaccines is never complete; it is only partial. 3. Cholera and dysentery attenuated live vaccines can be obtained by using a somewhat similar method as that for preparing the typhoid vaccine; but for the dysentery vaccine peptone-water cultures and not broth cultures should be used, as these give rise to an extremely painful infiltration at the site of inoculation. Much further investigation is necessary on the subject of dysentery vaccination. 4. I have no personal experience of the sensitised live vaccine prepared in 1911 by Metchnikoff and Besredka, but their results seem to be extremely good, as shown by Alcock. The experimental work of these observers on live vaccines is of great importance, having demonstrated that chimpanzees can be rendered immune to typhoid fever only by the inoculation of living vaccines, either sensitised or non-sensitised. 5. Various mixed vaccines can be prepared, either dead or live attenuated vaccines. The inoculation of such mixed vaccines is harmless and apparently in the lower animals they induce a degree of poli-immunisation, the blood developing protective substances for each of the germs inoculated. 6. I am of the opinion that in countries where paratyphoid A and B are endemic besides typhoid fever, a mixed vaccine typhoid + paratyphoid A + paratyphoid B should be used. If a live mixed vaccine should be objected to, a dead mixed vaccine can be used with satisfactory results. The inoculation of such vaccines as shown by me since 1909 is harmless, and it is probable that they give a certain degree of immunisation for all three infections.

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Colombo.

SHOULD A MAN WITH MINERS' NYSTAGMUS WORK?[1]

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I DO not intend to discuss the causes and prevention of the disease, for these have been very ably dealt with by the late Mr. Simeon Snell in his book on "Miners' Nystagmus" and also in his presidential address at the meeting of the British Medical Association in Sheffield in 1908, likewise by Mr. J. Court, of Staveley, who has worked for years at the subject, and by the late Dr. Tatham Thompson, of Cardiff; and it has been brought into prominence more recently by the paper of Dr. T. Lister Llewellyn, read before the Royal Society on Feb. 22nd, 1912, by Dr. J. S. Haldane, and by the discussion at the Oxford Ophthalmological Congress in July, 1912.

Correspondence took place recently between Sir A. B. Markham and the Home Secretary, Sir A. B. Markham as a coal owner urging that, since Mr. Court's views are backed up by the independent researches of Dr. Llewellyn, and since the number of miners stated to be incapacitated by nystagmus is increasing to an alarming extent, a Royal Commission should be appointed to inquire into the whole matter. The discussion at Oxford was opened by Dr. T. Harrison Butler and carried on by several men who had done work on the subject, leading up to the resolution that—

> In the opinion of the Congress, the character of the illumination is the chief factor in the production of coal miners' nystagmus, and that a Departmental Committee should be appointed to make inquiries into, and report upon, the exact conditions under which the disease occurs.

As regards prevention of nystagmus, the recommendation is to alter the character of the illumination and to give an improved light, electric light being suggested, and recently a prize was offered by the Home Secretary for the best miners' electric safety lamp, and was won by a German. It is called the Ceag lamp; it weighs 4½ lb., being a little heavier than the ordinary lamp. It gives a light of about 1·5 candle-power and will burn from 12 to 18 hours, while that of the oil lamp is less than 0·75. I understand that at Bull Croft Main Colliery, where this lamp is in use, they have from 300 to 400 and that they are very pleased with them in every way. They find the light good, and the men say they can see without any straining of the eyes. The management, therefore, expect cases of nystagmus to

[1] Being the presidential address delivered at the opening meeting of the 1912-13 session of the Sheffield Medico-Chirurgical Society.

become much less frequent, and to get better work done with more safety. Each stall is provided with an ordinary safety lamp for testing for gas, if necessary. In 1907, on account of the occurrence of several cases of nystagmus, a Departmental Committee sat before which Mr. Snell gave valuable evidence, and miners' nystagmus became a scheduled disease under the Workmen's Compensation Act. It was said in the report drawn up from the evidence that recovery might be expected in from three to 12 months' time from the cessation of pit work.

The objective symptom of the disease is an oscillation of the eyes at a rate varying from 100 to 300 times per minute. Dr. Meighan, of Glasgow, classified the cases in his evidence as follows. 1. Those in which the affection is slight and the men do not cease work. 2. Those in which oscillation is accompanied by giddiness, and there is absolute incapacity for the particular work. 3. Those in which the men have to cease work altogether. He considered that 5 per cent. of men employed in mines would represent the number who sought treatment. In contradistinction to this Mr. Snell maintained that about 30 per cent. had it; and he was right, as time has shown, when he said in his evidence that if the disease was scheduled the claims for compensation would rapidly increase. As a matter of fact the employers are now trying to find a way out of this difficulty.

The weight of evidence before the committee was strongly in favour of the view that no matter what stage nystagmus might have reached when medical advice for symptoms due to it was sought, pit work should be entirely relinquished, on the ground that this course alone would prevent aggravation. This view was expressed notwithstanding the fact that miners who had undergone treatment five or six years previously and were known to have been cured had resumed their ordinary work and continued it without further trouble. The Departmental Committee felt that the data on which this medical practice was based were not conclusive, and that the advice was given as a result of dogmatic statements on the subject, rather than from actual experience. The importance of this medical conclusion was apparent, as it was shown in the evidence that although the existence of nystagmus can easily be diagnosed the symptoms are largely subjective, and there is *no relation between the severity of the disease and the degree of incapacity*. Therefore a man with bad nystagmus may be able to work, while one with only slight evidence of the disease may be unable.

When nystagmus was scheduled it was arranged that after a man had obtained a certificate from a certifying factory surgeon, if the medical officer to the colliery company did not agree that he had nystagmus so as to incapacitate him from earning full wages, then on an application being made to the registrar of the county court within seven days (unless specially extended) he, the registrar, refers the matter to the medical referee for ophthalmic cases, whose decision is final. Where nystagmus is present and the man has stated that he is unable to work, such a decision is usually given in his favour. Nystagmus was then looked upon as an oscillation of the eyeballs only, but in January, 1910, a letter was addressed to the referees for ophthalmic cases by the Secretary of State, saying that his attention had been called to cases of clonic spasm of the muscles of the eyelids, with absence or disappearance of oscillation of the eyeballs, and asking for opinions. The opinions and replies were very diverse and unsatisfactory, and so far have led to nothing conclusive.

At the Oxford Congress one of the questions for discussion was, "Can you have nystagmus without oscillation of the eyeballs?" Opinions are at variance on that point also, but I have seen several cases where the blepharospasm goes on in place of nystagmus and is the more comfortable state to be in, and voluntarily this can be stopped when the nystagmus comes on in a distressing way.

Another question at Oxford was, "May a coal miner return to work underground after a cure?" As I have already remarked, Dr. Meighan said three to 12 months means a cure. A large number never return, and many medical men say never should return. Moreover, the verdicts of county court judges vary. If it is shown that oscillation has ceased, some say they may return after six months, some send them back at once, while others say that once nystagmus has been proved no return to the pit should be allowed. In the Court of Appeal—Jones *v.* New Brynmally Colliery Company, Limited—a collier was predisposed to suffer from nystagmus. From two attacks he recovered completely, but then his employers refused to retain him on account of the likelihood of a recurrence of the disease. The man being unable to obtain work applied for compensation. The county court judge found that he had "in a sense" completely recovered from the last attack of the disease, but that his inability to get work was the result of the disease, and awarded compensation accordingly. The Court of Appeal held there was no evidence that the man's tendency to nystagmus was due to his previous attacks of the disease, as opposed to his natural tendency to this disease, and that therefore there was no evidence that his incapacity resulted from his having had the attack of disease or "injury" when at work. In another case—Garnant Anthracite Colliery Company *v.* Rees—the man's medical attendant said that having had one attack of nystagmus he was predisposed to others, and the Court of Appeal held that Rees was entitled to compensation. Medical men also vary. Some allow men back to work after a period varying from a month onwards; others, never.

Mr. C. C. Moxon states that of 40 he had under his care he persuaded several to return to the pit, of whom he has examined seven lately. He found they had nystagmus as badly as ever, but they said that they could work and are working, and suffer no inconvenience unless they look up, which they need not do. It seems to be pretty well agreed now that a coal getter at his work does not turn his eyes up as used to be thought, and the reason nystagmus comes on when the eyes are turned up, at examinations, &c., is because the elevator muscles are the weakest and oscillation takes place when they are called upon.

Another Oxford question was: "Are mild cases unfit to work in pit?" I suggest letting them work until obliged to cease, as otherwise they only swell the list of those drawing permanent compensation. Note the following. The underground workers in Yorkshire between Sheffield and Leeds number about 100,000, and it is stated that 25 per cent. of these have nystagmus. The average age of these men is 39 years. Say that one man of that age decides to cease work and launch a claim for compensation for permanent disablement. Taking half the weekly wages as 16*s.*, this represents say £42 a year. A Post Office annuity of £42 would cost roughly £756, and under the Workmen's Compensation Act 25 per cent. of this has to be deducted, which leaves a balance of £567 as the commutation sum payable in accordance with the terms of that Act. But supposing his example is followed by the remainder of his mates similarly circumstanced, that would mean a weekly payment from the employers of no less a sum than £20,000, or for permanent compensation nearly fourteen million pounds sterling. Were this position brought about surely insurance companies, indemnity companies, and employers of labour would be in a very bad way. The above fact refers to Yorkshire only, but Dr. Llewellyn found that in one year there were 1618 cases of nystagmus being compensated, and this amount works out at £31,853 annually.

In some districts work has been found on the surface for men with nystagmus, but so far in Yorkshire the nystagmus cases have been paid full compensation until they have returned to the coal pit, and surface jobs have been kept for accident cases.

An interesting class of nystagmus cases is where a collier gets an injury to the eye, head, or any other part of the body, or an illness that lowers the general tone. On examining some of these cases, where no complaint is made at the time of the accident or before, nystagmus of a marked kind is found. Undoubtedly with recovery and improvement in general tone the nystagmus gets less or even entirely disappears, and I know of three people who are prepared to swear to the authenticity of the following case. A man who had an accident in the pit developed nystagmus during his time off. He returned to work with it in a marked form, and in ten days from starting work was quite free from it. Such instances make it the more difficult to say which cases are incapacitated and which are able to work.

The Yorkshire colliery owners are now awaiting the decision of the Miners' Union as to whether the latter will allow their members to try work on the surface if the owners will find it for them, as they feel now that steps ought to be taken to diminish the amount paid in compensation, and to

endeavour to get the men first to do surface work, and then to attempt work underground. In view of the numbers working comfortably with nystagmus, as already shown, a large proportion, at any rate, ought to be able to return. The Yorkshire colliery owners have approached the ophthalmic surgeons of the county and their own medical officers, the so-called compensation doctors, and these have with one accord agreed that the plan is a desirable one and ought to be tried. I am convinced it will be successful in getting many men back, as I am sure the knowledge that if they have nystagmus they will draw full compensation and not be required to work has led many men to make claims.

Nystagmus is certainly worse in men with a weak nervous system, low resisting power, and weak constitutions, and is aggravated by excesses and low tone. If, therefore, such a man is leading an absolutely lazy life there is not much chance of his getting any better, since with nothing but compensation coming in he is insufficiently fed and goes from bad to worse. It is also a known fact that of colliers off work the nystagmus men drink the most, and get into most trouble, probably because of their low resistance power in more ways than one. For these men much the best course, and one generally admitted to be such, is to get them to do some work instead of loafing; and with occupation and better food tone will be maintained, and they will be much more likely to improve. Before the Compensation Act there was very little said about nystagmus and traumatic neurasthenia. Evidently cases of nystagmus existed before the complaint was scheduled, but only a small proportion was heard of. When, however, men realised they could get compensation for it and began to examine each other for it, and got to know that medical men generally considered them totally incapacitated from pit work and entitled to compensation, then the numbers went up. The claims go so far that miners' nystagmus is blamed in cases sent to lunatic asylums for disseminated sclerosis, cerebellar tumour, also for cases of high myopia and hereditary nystagmus, as the oscillation of the eyeballs is the only thing for which a claim can be made. As evidence of how little is known of the degree of incapacity caused by nystagmus and its duration a verdict was recently given by a county court judge reducing the award to a man because an ophthalmic surgeon is stated to have said that the limit of duration of nystagmus is two years, and that previous to the Workmen's Compensation Act the duration was much shorter, and implying that if it lasted longer the man must be malingering. As most of us know, there is no limit to incapacity from nystagmus.

My foregoing remarks have been made with a view to showing you that miners' nystagmus is a most complicated subject. It is very difficult, if not impossible, to state whether a man suffering from it is able or unable to work; and with the number of cases steadily increasing year by year, where is it going to land the employers, especially when the ideas of county court judges, decisions of the Court of Appeal, employers, and medical men are greatly at variance, though they generally tend to look upon it as causing absolute incapacity? Is there any way by which we can tell definitely that a man is certainly incapacitated from work by his nystagmus? If a man holds his head well back, with his eyes partly closed and looking down, his state is probably bad, as that position gives maximum stability with convergence of the eyes, in contradistinction to looking up, with the eyes diverging, which gives minimum stability and brings on nystagmus. Then tremulousness of the eyelids, of the head and neck muscles, and even of the body muscles shows undoubted incapacity.

I have information that whereas the claims on account of nystagmus made on the Yorkshire Coal Owners' Mutual Indemnity Company, Limited, for the first six months after the disease became scheduled in 1907 were only 15, in the year 1911 they were 225. With this enormous increase, and seeing that the claimants have the disease in no different form to the 25,000 men working in Yorkshire pits of their own freewill, something in the way of legislation should at once be taken in hand to meet the situation.

An interesting fact is that when the disease was scheduled it was expected that the claims from Lancashire would far exceed those from Yorkshire, but time has shown that for one claim in Lancashire there are nine in Yorkshire, leading one to the conclusion that in Yorkshire the fact of the men being paid full compensation and not required to work induces those with nystagmus to claim compensation, and is therefore a wrong principle.

The conclusions I have drawn in working out my paper are that when a man claims to be and is admitted to be incapacitated by nystagmus, after a reasonable period during which he has been under constant observation, if his condition warrants his being employed, he should eventually resume work under ground, but as a commencement occupation above ground should be provided. For, as I have shown, there is no doubt that a man with bad nystagmus can work and do good work, and is no worse for doing it; and certainly the attitude of the medical profession towards the disease—viz., that as soon as a man was diagnosed to have nystagmus he should not be allowed to work in the pit, and should be advised never to return—has been responsible in great measure for the present state of affairs. Seeing, however, that many of us brought in contact with the disease now know that the willing men can work with nystagmus, and are doing so, I should like to plead that a different attitude be taken up, and instead of immediately looking upon a man with nystagmus as totally incapacitated we should, with the exception of serious cases, urge the claimant to continue work, knowing that he can do so without injury to himself.

Sheffield.

PERFORATION OF GASTRIC OR DUODENAL (PYLORIC) ULCERS.[1]

INFERENCES ON MODERN TREATMENT DRAWN FROM HISTORIES OF PATIENTS WHO HAVE RECOVERED.

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IN the Erasmus Wilson lectures delivered before the Royal College of Surgeons of England, London, in 1903,[2] the pathological and clinical uniformity of gastric, duodenal, and other perforations of the alimentary tract was urged, the pathological process being termed an acute infective necrosis. In the *Journal of the American Medical Association* for August, 1908, Mr. W. J. Mayo insists yet again on their clinical "oneness." The uniform character of the treatment also asserts the similarity of their characters.

In the present communication I would suggest that it is most convenient to classify the ulcers particularly under discussion as *gastric* ulcers, which are present at the cardiac end or in the body of the stomach, and *pyloric* ulcers, which term includes ulcers on either side of the pylorus—i.e., in the stomach or duodenum. This classification suggests the partial giving up or limitation of the time-honoured words "duodenal ulcer," but is more practical than any other, gets over the difficulty of deciding if a particular ulcer is duodenal or gastric, and would serve, if others agree with me, to distinguish when the suture of a perforated ulcer is likely or not to require a gastro-enterostomy. The name "duodenal" would be retained for ulcers beyond the first part of the duodenum—i.e., the pyloric area.

The Question of the Performance of a Gastro-enterostomy.

There is already collected a vast literature on the subject of gastric and duodenal ulcers and their perforations, too large to be assimilable. A great deal of this literature only serves to show that it is possible for a patient to recover from the perforation of a gastric or duodenal ulcer, and that the mortality of such an event varies, in general, directly with the time allowed to elapse between the perforation and the operation. Until recently the main feature of the operation performed consisted of suture of the ulcer. Operative procedures used by surgeons to combat such a perforation have been added to by the suggestion of Sir Berkeley Moynihan, of Leeds,[3] that a gastro-enterostomy should be performed at the same operation as that at which the ulcer was sutured. This addition to the operation on a patient often already perilously ill cannot be accepted without very

[1] Being a paper read at the Surgical Section of the Royal Society of Medicine on Feb. 11th, 1913.
[2] Constable and Co., London.
[3] Transactions of the Royal Medical and Chirurgical Society, vol. xc., 1907, pp. 254-257.

strict examination. Indeed, the opponents to its introduction referred to it as an exhibition of surgical agility at the expense of the patient.

It is a matter of common clinical observation which must come before the notice of every surgeon that some patients in whom the perforation of a gastric or duodenal ulcer has been successfully sutured do very well, lead busy, useful lives, and, with exception perhaps of occasional dyspepsia, are quite well. It might well be asked how could a gastro-enterostomy possibly benefit such people? Yet Sir Berkeley Moynihan is not a man to "say it very deliberately" (his own words),[4] and advise the performance of a gastro-enterostomy without good reason. This was advised in the discussion on operations for gastric ulcer before our predecessors, the Royal Medical and Chirurgical Society, in 1907. Five years have now elapsed, and during that time sufficient evidence must have accumulated to shed light on this point and enable us to see in what degrees both Sir Berkeley Moynihan and his opponents were right. I have, therefore, surveyed the literature on this subject since 1907, and have followed up (even to the employment of a private detective) as many patients as I could who have recovered from an operation for the perforation of a gastric ulcer. For permission to use their cases I must thank my colleagues, past and present, at St. Thomas's Hospital. The cases, 40 in number, were in the hospital between 1900 and 1910.

Of these cases about one-third, 33 per cent., were completely cured. The remaining two-thirds, 67 per cent., were unsatisfactory on account of dyspeptic attacks, inability to follow their occupations, the necessity of constant care in their diet, nervousness, depression, and so forth. I have given so rough an estimate of the condition of these people after operation because if another person was to make another and similar estimate from the same lot of patients he would form a different opinion. The reason for this is that he would regard, and perhaps quite rightly, many of my "unsatisfactory two-thirds" as satisfactory. This is well shown by the estimates of other authors:—

	Satisfactory.	Unsatisfactory.
French, 18 cases (Guy's Hospital Reports, 1907, vol. lxi.)	83%	17%
Crisp English, 17 cases (Transactions of the Royal Medical and Chirurgical Society, 1903)	65%	35%
Paterson, 33 cases (THE LANCET, vol. i., 1906, p. 575)	48%	52%
Morton, 11 cases (Brit. Med. Jour., 1910)	30%	70%
Rendle Short, 23 cases (Bristol Medico-Chirurgical Journal, September, 1911)	34%	66%
Corner, 40 cases (Royal Society of Medicine, 1913) ...	33%	67%

The great variation in these estimates (142 cases in all) from Dr. H. French in 1907 (83 per cent.) to that of Mr. J. Morton of Glasgow in 1910 (30 per cent.), is due to the widely different views which can be taken quite intelligently of what is to be regarded as satisfactory and what is decided to be unsatisfactory. I have therefore formed a modest estimate, by chance following Mr. Short and Mr. Morton, of complete and incomplete cures. In this estimate the three of us (Short, Morton, and Corner) agree very well, and our results, based on 74 cases altogether, only show divergence from the other observers in degree, not in the principle involved. Hence it can be assumed that as one-third of the successful cases of the perforations of a pyloric ulcer are cured, a gastro-enterostomy done at the same operation as that in which the ulcer is sutured could have done the patients no good, and have been entirely an exhibition of "surgical agility at the patient's expense." Indeed, it would, and must, have done some of the patients harm, as we must all know of patients who have been made chronic invalids by the operation of gastro-enterostomy. It is obvious that no gastro-enterostomy is required in at least one-third of the cases of the perforation of a gastric or duodenal ulcer which come to operation. To try to find out why some patients are cured and some are not, I have gone carefully into the notes of the St. Thomas's and private patients, and as a result of this study I would suggest that the patients owe their cure largely to two factors: (1) the situation of the ulcer; and (2) the pathological character of the ulcer.

1. *The situation of the gastric ulcer.*—Those patients who became completely cured after the operation, as contrasted with those who did not, showed a far greater proportion of ulcers situated in the cardiac end of the stomach. Whilst the patients whose perforated ulcers were pyloric and duodenal showed greater likelihood of the probability of their becoming the subjects of pain and dyspepsia or recurrent ulceration after operation, nothing can be said so definitely as to the influence of the situation of an ulcer on the anterior or posterior wall of the stomach, or on the greater or lesser curvature of the stomach. But it does seem reasonably certain that ulcers in the cardiac end and body of the stomach offer a far better chance of complete cure than do ulcers in the neighbourhood of the pylorus, whether they be on the anterior or posterior wall or on either curvature. The former do not, therefore, require a gastro-enterostomy, which will find its sphere of usefulness amongst pyloric ulcers. Mr. T. Crisp English,[5] in his paper in 1903, says that these perforated ulcers existed to each other in the proportion of 54 per cent. of cardiac ulcers to 46 per cent. of pyloric ulcers, which suggests that a gastro-enterostomy may be required in about one-half (50 per cent.) of the cases operated on for perforated gastric ulcer. Mr. Alexander Miles,[6] of Edinburgh, has, not unnaturally, differed in his estimate from that of Mr. Crisp English, making 50 per cent. of perforating ulcers cardiac and 50 per cent. pyloric. Amongst perforated pyloric ulcers (gastric and duodenal) some patients recover completely. Hence one is quite safe to argue that a gastro-enterostomy is not required in as many as half the cases of the perforation of a gastric or duodenal ulcer.

2. *The pathological character of the ulcer.*—That gastric and duodenal ulcers vary in their pathological character everyone knows, and no one will deny. There is a variety in which the tissue-death which constitutes the perforation of the ulcer is the last phase of the disease, leaving the walls of the ulcer ready to heal. Hence, when it is sutured it heals firmly, never breaks down again or by infection gives rise to satellite or recurrent ulcers. In consequence the patient gets completely well after the operation for the suture of the perforated ulcer. Apparently these ulcers occur in both ends of the stomach and in the duodenum. From our lack of knowledge at present we cannot differentiate them from the more troublesome ulcers, but we suspect them of being present as an acute ulcer in a patient who has had little or no symptoms before the perforation. In such cases a gastro-enterostomy is not required.

Up to now this paper has been concerned with negative propositions so far as the operation of gastro-enterostomy is concerned, and it is only right that some attempt should be made to show what evidence St. Thomas's Hospital can produce as the result of the five years which have elapsed since the great discussion on the treatment of gastric ulcers before the Royal Medical and Chirurgical Society in 1907. In the first place, it has been proved that to do an operation of gastro-enterostomy at the same time as the cœliotomy for suturing the ulcer may be more than the patient can withstand. One death at least may be attributed to this excess of zeal. Secondly, it is clear that a great many patients who had an immediate gastro-enterostomy became completely cured. Was it due to the gastro-enterostomy? Then there are some who are not completely cured in spite of the gastro-enterostomy. Is this due to the gastro-enterostomy? Further, it is very far from proved that the recovery-rate for the operation of suture of the ulcer and primary gastro-enterostomy was higher or lower than that consequent upon cœliotomy and suture. It is not clear in any way that a primary gastro-enterostomy is better than a secondary gastro-enterostomy (3–6 months or more later). Indeed, a secondary gastro-enterostomy apparently has made some unsatisfactory cases eminently satisfactory. Even this benefit cannot be attributed with certainty to the gastro-enterostomy, because some women who had recovered from the perforation of a gastric ulcer and were unsatisfactory on account of dyspepsia, constipation, flatulence, &c., became eminently satisfactory after marriage and its consequences—a change of living curing them.

To sum up the results of my examination of some 40 cases and five years of literature, it would seem that:—

1. Many subjects of the perforation of a gastric ulcer are benefited by a gastro-enterostomy. This is particularly true if the perforating ulcer is in the neighbourhood of the pylorus, gastric or duodenal.

[4] Ibid., p. 254.

[5] Transactions of the Royal Medical and Chirurgical Society, 1903.
[6] Edinburgh Medical Journal, 1906.

2. It would appear, speaking generally, that a secondary gastro-enterostomy—i.e., after the patient has recovered from the immediate danger of the perforation—is better than a primary gastro-enterostomy.

3. It is better for the patient to have a secondary gastro-enterostomy when it is required than have the additional danger of a primary gastro-enterostomy which may not be needed. It would appear that the "betting" is rather against than for the gastro-enterostomy.

4. It has not been shown that a primary gastro-enterostomy presents such advantages over a secondary gastro-enterostomy that it, the primary gastro-enterostomy, should be practised in the treatment of the perforation of ulcers even when situated in the neighbourhood of the pylorus.

Post-operative Dyspepsia.

In the course of my study of these cases I have naturally met with features of interest which I will briefly narrate.

There is a clinical point of great moment in the history of patients who have recovered from the perforation of a gastric ulcer. It is very common for these patients to have an attack, often a long one, of pain and dyspepsia, beginning a few months after the operation. For instance, there is the case reported by Mr. A. R. Parsons,[7] of Dublin, of a girl 19 years of age, who recovered from the perforation of a gastric ulcer and had an attack of "pain and dyspepsia" six months after the operation, and from which she was not free for about 18 months. She never required a secondary gastro-enterostomy, and when once the pain had disappeared it went for good, leaving her in an eminently satisfactory condition about two years after the operation. Personally, I have seen three patients whose "post-operative" dyspepsia was so bad and prolonged that I advised a secondary gastro-enterostomy; yet with medical means they were cured and have remained cured, none requiring operation.

Death from the perforation of a second ulcer generally is limited to a single instance in each published series of cases, as Dr. French[8] has pointed out. There was one such instance amongst the author's series of cases. Hence it may be regarded as known but uncommon. Indeed, it seems less common than the perforation of a jejunal ulcer after a gastro-enterostomy, and I think it is clear that this phase of "post-operative" dyspepsia is eminently capable of cure by medical means. In fact, I would urge that it is anticipated by medical treatment and advice in every case of recovery from the perforation of an ulcer. In my experience it is far more common than is the need for a secondary gastro-enterostomy. Before closing this section of my communication I would like to say that, certainly with regard to the cases concerned in this paper, appendix-dyspepsia is of no great moment; but often it is well to remove the appendix when doing a secondary gastro-enterostomy.

Occlusion of the Pylorus.

In connexion with gastro-enterostomies, primary or secondary, done for the relief of ulcers in the neighbourhood of the pylorus, there is a very important point in technique which I would submit for your consideration.

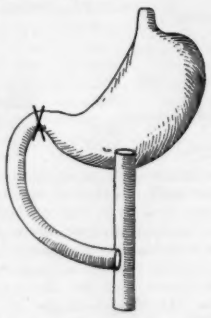
All fluid whose habit it is to pass along a pipe has comparatively little tendency to escape through a lateral hole in that pipe; or, to put it another way, even when a lateral aperture is present, the great volume of the fluid will continue to flow along the pipe, and but comparatively little will escape through the lateral opening. A gastro-enterostomy is merely a lateral opening, and in consequence through it only a small proportion of the gastric contents will pass, especially of the lighter and fluid contents. Hence without pyloric obstruction a gastro-enterostomy is no panacea for ulcers in the neighbourhood of the pylorus or duodenum. This was excellently illustrated by a patient under the care of Mr. F. W. Mason, of Boston, Lincolnshire. The patient had a gastro-enterostomy done by Sir Berkeley Moynihan, a guarantee that it was well done. During the next four years the patient had pains, dyspepsia, and discomfort. At the end of that time, in Sir Berkeley's absence, I had to open the abdomen hurriedly. There was no jejunal ulcer present; indeed, the gastro-enterostomy opening was very contracted. But the patient had a large perforated ulcer in the first part of his duodenum. This case illustrates that the ulcer probably was not cured by the gastro-enterostomy; again, that in the absence of pyloric obstruction a gastro-enterostomy tends to close (like any other lateral anastomosis not in the presence of obstruction to the flow directly onward).

Then I may mention another instance. A young woman was successfully operated upon by Mr. H. Sampson for me at the Bowes Park Cottage Hospital for the perforation of a pyloric ulcer. No gastro-enterostomy was done. A year later Mr. L. E. Barrington-Ward operated again, and again successfully, for the perforation of a pyloric ulcer. A secondary gastro-enterostomy was done later, and so far it works well, I would suggest that this is largely due to the presence of adhesions in the neighbourhood of the pylorus causing obstruction.

A better illustration is that of a young man who was successfully operated upon for a perforated gastric ulcer, a primary gastro-enterostomy being done. After a year of pain and discomfort it was needful to explore the abdomen again. The gastro-enterostomy was found to be excellent, and there was no trace of a jejunal ulcer. Hence the cause of the patient's pain and discomfort was most probably the passage of the gastric contents over the region of the former ulcer which had perforated—i.e., in the neighbourhood of the pylorus. These gastric contents could be made to pass through the gastro-enterostomy opening by occluding the pylorus. Therefore a ligature was passed round the pyloric end of the stomach and tied sufficiently tight to occlude the lumen. The effect of this simple proceeding on the man's pain was simply magical; when he came round from the anæsthetic the pain was gone! This occlusion of the pylorus was first suggested by Berg. Since this date I have always placed a ligature on the pyloric end of the stomach when doing a gastro-enterostomy for pyloric ulcers (or when the ulcers were believed to be pyloric), and I think that the patients have benefited therefrom. (Fig. 1.)

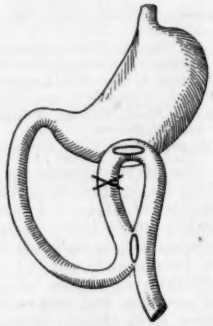
Further, I would like to say that, when the patient's condition allows of it, I have had better results from a posterior

FIG. 1.



A gastro-enterostomy by Roux's method, showing (by cross) the situation of the ligature for occluding the pylorus.

FIG. 2.



An ordinary method of performing gastro-enterostomy, showing the situation of the occlusion by ligature of the afferent loop.

gastro-enterostomy done after Roux's method than any other. The phrase "after Roux's method" has been used, as I believe that an anterior gastro-enterostomy was an essential part of Roux's original plan, whilst I have always used a posterior gastro-enterostomy. After it there is no vicious circle or regurgitation of bile into the stomach, and the operation is not marred by the "no loop" fallacy. In default of being able to do a Roux's gastro-enterostomy I believe that it is better to do an entero-enterostomy and place a ligature, not tightly, on the afferent loop of the jejunum between the entero-enterostomy and the stomach, as first suggested by Fowler. (Fig. 2.) This can be done at the first operation primarily, the patient's condition permitting, or later secondarily. But usually it is better done than left undone. Occlusion of the pylorus may be followed by much vomiting during the first day or two after operation if food is given, and owing to temporary swelling the gastro-enterostomy aperture is closed. In such cases the patient is given continuous infusion of saline per rectum, and no food by the mouth. Later water is given in small doses.

At the present time I have under my care an elderly

[7] Dublin Medical Journal, 1906, vol. cxxi., pp. 81–92.
[8] Loc. cit.

gentleman, 63 years of age, who has been operated on already twice—for appendicectomy and for an ileo-cæcal kink with intestinal stasis. The poor fellow really has a large duodenal ulcer adherent to his liver and pancreas (? carcinoma). For this I did a gastro-enterostomy with occlusion of his pylorus, with considerable amelioration of his condition.

From the brief notes I have given I would submit that occlusion of the pylorus is a very real measure to be considered as a valuable, or even a necessary, adjunct to gastro-enterostomy performed for the relief of pyloric (and duodenal) ulcers. As such I bring it to your notice. (The ligature is not tied tightly enough to ulcerate its way into the stomach, and is expected to become the foundation of a fibrous ring round the pyloric end of the stomach, permanently occluding it, as is the case with silk stitches elsewhere.)

Isolation of the Perforation by Tamponade.

Undoubtedly the best local treatment for a perforated gastric or duodenal ulcer is to close it by suture, and the abdomen with drainage. But there can be no doubt that one of the first difficulties which a surgeon meets in these cases is to close the perforated ulcer soundly and satisfactorily. The reason of the difficulty is that the stitches, used to close the perforation, "cut through" the sodden, swollen tissues in which they have to be inserted to close the perforation. If such "cutting through" happens under our very eyes, how often does it result in the loosening, or the total loss of hold, of the stitches on the tissues after the abdomen is closed and the patient is in bed? One cannot but surmise that many perforations deemed to be closed satisfactorily at the operation are not so an hour or two later. Yet in spite of this, patients who have been operated upon continue to recover. Hence there is a justifiable suspicion that cases of perforated gastric or duodenal ulcer can recover when the perforation is not closed, or at least imperfectly closed. In 1908 Mr. Walter R. Bristow and I[9] put this to the test by not attempting to close the perforated ulcer in two patients; in one we "corked" the perforation with a tag of omentum, and in the other a veil of omentum was maintained in position by two or three stitches. Both patients recovered and had easy convalescences, unmarked by any feature, such as gastric fistula, which would suggest leaking through the perforation.

Since this date (1908) I have used the principle of isolating, but not closing, the ulcer on at least 15 occasions, including one perforation on the posterior abdominal wall. In two of these the end of a gauze plug was held by a catgut stitch in the aperture of the perforation. I have never lost a patient on whom this practice has been used. These patients have done uniformly well. Personally, I think better than do those in whom time was spent in closing (?) the ulcer by suture. As a general rule, the longer the time spent in suturing the perforation the greater the difficulty and the insecurity of the closure. Isolation of the perforation by tamponade has the advantage of being simple and of saving valuable time. No patient on whom it was done has ever needed a primary or a secondary gastro-enterostomy. No patient has had a gastric fistula or has in any way, such as by delayed convalescence, shown sign (or signs) of the non-closure of the ulcer. I may add that when the perforation is not sutured the end of a gauze drain is always placed next the ulcer and brought out of the wound. This drain is removed in about 36 hours under anæsthesia with nitrous oxide gas and not replaced. After operation the patient is placed in the Fowler position, saline solution is administered rectally and continuously, and nothing but water is given by the mouth for three days. Recently it has been my practice to enclose the isolating tampon of gauze in a longitudinally split rubber tube, a cigarette drain, part of which is left in position after the removal of the gauze.

Having shown the practicability of the successful isolation of a perforation with a gauze tampon, it may now be discussed what possible position may be taken by this procedure in the surgery of perforated gastric and duodenal ulcers. I would suggest this: The firm closure of the perforation and of the abdomen, without drainage, is undoubtedly the best treatment that can possibly be carried out. But this ideal is in practice more often unrealisable than realisable. Therefore, I would suggest that at first an attempt is made to close the perforation by suture. If this fails or appears to afford a doubtful closure of the perforation, no further time should be spent on it, but the ulcer plugged and drained. Thus I would suggest, having first proved that it can be done successfully, tamponing the perforation with omentum and gauze is the second best line of treatment for the perforation of a gastric or duodenal ulcer; and that this second line of treatment is of much more frequent and general application than is the first. Indeed, the patients I have deliberately tried it upon have done so well that I believe, chiefly on account of its saving time, the isolation of these ulcers by tampon will become the first and most popular line of treatment except in cases operated upon very early after perforation of the ulcer

Subacute Peritonitis, Chronic Peritonitis, and Adhesions.

All are very familiar with complications such as pelvic abscess or subdiaphragmatic abscess, but we are not so familiar with the course of a subacute or chronic peritonitis which may go on for weeks and against which vaccine or serum treatment is the sheet-anchor of our treatment. Let me quote an example.

I operated for the perforation of a gastric ulcer in a girl, 21 years of age, about 40 hours after the perforation. The perforation was closed by suture and its track isolated from the rest of the peritoneal cavity by omentum and a gauze drain. The pelvis and loins were dried through a subumbilical incision and the former drained. For between five and six weeks the patient kept having a very regular temperature, about 100° F. No signs of a residual abscess in the loins, pelvis, or subdiaphragmatic spaces were discoverable. There was nothing in the pleura or pericardium. Some albumin appeared in the urine. The bowels acted well, and food was taken. The abdomen was somewhat distended. There was a large leucocytosis. The left subdiaphragmatic region was explored in the hope of discovering an abscess, but only a large spleen, surrounded by perisplenitis, was found. Suffice it to say that the patient succumbed in spite of all treatment after an illness which lasted six weeks.

Then I have the case of a man who had a perforated gastric ulcer which was operated on some 12 hours after the perforation. Owing to the œdema of the tissues round the perforation it could not be closed satisfactorily. This man has had a subacute or chronic peritonitis going on for 12 weeks, from which he recovered slowly.

Consideration of these last two cases leads me to that of my first successful operation for the perforation of a duodenal ulcer (1901). The case illustrates a result of the peritonitis which may follow the perforation and be recovered from. An infinity of adhesions causing death is sufficiently unusual in these cases as to be worthy of record, the adhesions in general clearing up marvellously.

In July, 1901, a physically perfectly developed man, 34 years of age, was admitted to St. Thomas's Hospital. He never had anything the matter with him until he had abdominal pain four days ago. This pain increased, and there was no onset of symptoms which would suggest the sudden perforation of an ulcer. At the operation a perforation one-third of an inch in diameter was found about half an inch on the duodenal side of the pylorus. This was closed by sutures, and the peritoneum was washed with saline solution. After operation the temperature was irregular for seven days, reaching to between 100° and 101° F.; on the sixth day it reached 101·4°. The stitches were removed on the tenth day, and the wounds were clean. He had slight diarrhœa. Beyond this his convalescence was without incident. In December, 1901, he was re-admitted to the hospital for abdominal pain and obstinate constipation which rendered him miserable, and had caused him to seek refuge in alcohol. At operation it was found that every item of the alimentary canal was superlatively adherent to its surroundings, but not to the abdominal wall or the scars. In other words, his symptoms were due to superlative visceral adhesions. There were no signs of tuberculosis now or at his first operation. The man died about a fortnight after the exploratory operation.

Such a condition must have been the result of a wide-spread form of peritonitis arising in some "lowly" form of infection from which at first the man recovered, but was unable to regain sufficient power to "clear up" the adhesions, which led to his death in six months' time. The case has been brought forward from other points of view in the Erasmus Wilson lectures of 1903.[10]

Ventral Hernia.

Examination of the patients who had recovered from an operation or operations for the perforation of a gastric or

[9] Brit. Med. Jour., 1909, vol. i., p. 1288.

[10] Constable and Co., London.

duodenal ulcer showed two facts about ventral hernia which are well worth consideration. Firstly, it may be premised that ventral herniæ are not infrequent after an operation for the suture of a perforated gastric or duodenal ulcer. Secondly, where two incisions were present, it was more frequent to have a hernia through the scar in the upper abdomen than through that in the lower abdomen. This fact is a reversal of the generally accepted dictum that ventral herniæ are more prone to follow scars in the lower than in the upper abdomen. Thirdly, the hernial protrusions through the scar in the upper abdomen were larger in general than those in the lower abdomen; but though more frequent and larger they do not give rise to so great a sense of weakness, disability, or discomfort as the latter do. From this follows another clinical feature—namely, when a patient complains of symptoms referred to the hernial protrusion in all probability they are due to conditions (of the stomach) underneath. Thus in one patient who came complaining of symptoms which he referred to the hernia, Dr. H. P. Hawkins found the signs of a dilated stomach and pyloric obstruction. A gastro-enterostomy relieved the symptoms of which he complained, but the hernial aperture was too large to be closed by suture, and so the hernia persisted, definitely and tritely proving that the symptoms were not due to the hernia, but to the pyloric obstruction beneath.

In conclusion, I would like to lay stress on what is a fairly obvious fact. Patients who have undergone such nervous shock as that accompanying the perforation of, and the operative procedures for the perforation of, a gastric or duodenal ulcer are extremely prone to become neurasthenic, so that they could not do what they used to do formerly, having to give up their occupations (such as of a painter, &c.). There can be no doubt that this neurasthenia and the brevity of convalescences in modern surgery, which are inseparable from the condition under discussion, have a great deal to do with the occurrence of dyspepsia and pain after the illness, such as are shown by those patients who were relieved by a marriage. This consideration makes the very various opinions of those who have worked at the condition of patients after recovery from the perforation of a gastric or duodenal ulcer comprehensible, and it must make us very careful not to recommend a secondary gastro-enterostomy for neurasthenia. So far as I have been able to discover, patients who have had a primary gastro-enterostomy are just as neurasthenic as those who have not.

Harley-street, W.

THE TREATMENT OF TUBERCULOSIS IN BRIGHTON.—At its meeting on Feb. 20th the Brighton town council approved of a draft scheme for the provision of a dispensary and sanatorium for the treatment of tuberculosis. Already in possession of a sanatorium, Brighton is far better off than if it had to send its patients elsewhere, and the council has placed at the disposal of the Insurance Committee for the treatment of insured persons suffering from tuberculosis a pavilion at the borough sanatorium which comprises 53 beds in all—36 for pulmonary tuberculosis, 12 for joint diseases, and 5 for isolation purposes. The Insurance Committee has agreed to pay the sum of 27*s.* 6*d.* per week in respect of each patient received on its behalf in the sanatorium, and as a temporary arrangement, pending the adoption by the council of a permanent scheme, the sum of £15 per quarter in respect of dispensary treatment and the sum of £25 per quarter in respect of the services of the medical officer of health. The population of the area served by the scheme is 133,096, and the total number of cases of tuberculosis notified in the area during the period Jan. 1st to Sept. 30th, 1912, was 282 new cases and 163 re-notification cases. The net expenditure of the council in respect of the dispensary is put at £980, the patients during the year 1912–13 being estimated at 2080, and during the year 1913–14 4160. As regards institutional treatment the net expenditure during the year 1912–13 is given as £3202, and during the year 1913–14 £3585. Of the latter sum it is estimated that the council will not be called upon to pay more than £2000 a year. The council further decided that a tuberculosis officer is urgently required to act as officer to the dispensary, visiting physician to the sanatorium, and consultant and adviser for domiciliary treatment; and, subject to the approval of the Local Government Board, the medical officer of health is to be termed the chief administrative officer under the scheme for the treatment of tuberculosis.

THE CONTRACTION RING AS A CAUSE OF DYSTOCIA,

WITH A DESCRIPTION OF A SPECIMEN REMOVED BY HYSTERECTOMY DURING LABOUR.*

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THE contraction ring as a cause of dystocia is one which is neglected in the standard text-books on obstetrics, and the ring itself is frequently confused with the retraction ring of Bandl which forms as a result of obstructed labour. A differential diagnosis of the two conditions is, therefore, attempted below.

Differential Diagnosis.

Contraction Ring.	*Retraction Ring.*
1. A localised thickening of the wall of the uterus due to the contraction of the circular fibres over a point of slight resistance, most frequently over a depression in the child's outline or below the presenting part.	The junction of the thinned lower uterine segment with the thick retracted upper uterine segment.
2. The uterine wall at the site of the contraction ring will therefore be thicker than it is either above or below.	The uterine wall above the retraction ring is much thicker than it is below it.
3. The wall below is neither thinned nor over-distended.	The wall below a retraction ring is both thinned and over-distended.
4. The presenting part is not forcibly driven into the pelvis.	The presenting part is or has been jammed into the pelvis.
5. The child may be wholly or mainly above the contraction ring.	Part of the child must be below the retraction ring.
6. The body of the uterus above a contraction ring is usually relaxed and not tender.	The body above a retraction ring is tonically contracted and hard.
7. Round ligaments are not tense.	Round ligaments stand out.
8. A contraction ring may occur in the first, second, or third stage of labour.	A retraction ring practically always occurs late in the second stage of labour.
9. A contraction ring does not vary in position as labour goes on.	A retraction ring gradually rises as retraction of the upper uterine segment proceeds.
10. A contraction ring is rarely felt on abdominal examination.	A retraction ring may frequently be felt per abdomen.
11. The patient's general condition is good.	The patient's general condition is bad.
12. Causation: premature rupture of the membranes; intra-uterine manipulations.	Causation: obstructed labour.

The existence of a local contraction of the uterus.—The existence of a contraction ring is proved by measuring the thickness of the wall of a uterus and noting that in the ring it is thicker than above or below. This was done in one of Philipps's cases, recorded by Holland,[13] in Andrews and Maxwell's,[1] Schroeder's, Lusk's,[18] and the specimen here described.

The ring forms over an area of slight resistance and tends to fit into depressions of the child.—In Andrews and Maxwell's case the ring corresponded with the groove of the child's thigh, in one of Budin's[6] to the hollow of the knee. Forming below the feet in incomplete breech presentations its importance is insisted on by Lewis,[17] Jardine, and de Bovis.[4] It has also formed round the thorax (Chavane,[8] Boquel [3]) and round the arm (Bué,[7] Hicks,[14] and others), but in the great majority of cases it forms round the neck. Finally, it may form below the presenting part (Smith,[21] Sinnetamby,[20] Jardine, Formichella,[11] and others). The position of the contraction ring in the cases I have collected is:—Round neck, 45 per cent.; below the whole of the child, 21 per cent.; round the arm, 15 per cent.; round thorax, 9 per cent.; neck of after-coming head, 9 per cent. In showing the part played by the fœtal outline in the formation of the ring an observation of de Bovis is of importance. The ring fitted tightly into the popliteal space of a child presenting as an incomplete breech. He dilated it with difficulty and finally reached a foot, but the prominence of the ring prevented the foot being brought down. On following the ring backwards to the level region of the child's back, he states that he was agreeably surprised to find that the ring became less and less marked till it was practically non-existent. He took advantage of this in finally delivering the child.

* Abstract of a paper read before the Obstetrical Section of the Royal Society of Medicine on Dec. 6th, 1912.

The wall below the contraction ring is not thinned or over-distended and the presenting part not forced down into the pelvis.—In a retraction ring case the thickening of the upper uterine segment is compensated for by a thinning of the lower segment and at the junction of the two the ring forms. The presenting part must have been fixed in the pelvis in order to give the uterus a *point d'appui* to contract and retract against; for instance, it is inconceivable that thinning of the lower uterine segment could occur with a hydatidiform mole. The presenting part is jammed and fixed in the pelvis, except in the theoretical case, where secondary uterine inertia has supervened on the top of tonic contraction. On the other hand, with a contraction ring the wall below is not thinned, neither is it over-distended. Clinically, thinning is difficult to determine, and so more importance should be paid to the absence of distension than to apparent thinning. The presenting part is, moreover, as a rule not fixed or forced down in the pelvis. In some cases it is below the presenting part; this alone should exclude a retraction ring at once.

Condition of the body of the uterus.—In a contraction ring case the fundus, as a rule, is soft and still undergoing contractions and relaxations. In several cases (Sinnetamby, Radcliffe[18]) post-partum hæmorrhage occurred, which is very rare in tonic contraction. The ring, when sufficiently marked to cause dystocia, does not relax with the rest of the uterus. In exceptional cases the body of the uterus is hard and does not relax. In the same way the fundus, as a rule, is not tender.

Time of occurrence.—Except in rare cases of organic obstruction to dilatation of the cervix (e.g., by carcinoma) a retraction ring is always seen late in the second stage. Contraction rings are also most frequently found in the second stage, probably because it is at this time that the hand is introduced to find the cause of the delay, but they are met with in the first stage with the membranes still intact (Budin, Smith, Jardine, and Demelin[10]). The occurrence of a contraction ring during labour is followed by retention of the placenta in some 7 per cent. of cases. In Chavane's case the placenta was retained for 24 hours; he then called in Maygrier, who had the greatest difficulty in getting through the ring; during the puerperium intra-uterine douches were necessary, and he records that even the intra-uterine tube was gripped, thus showing the extreme irritability of the uterus. Hahl[13] noted gripping of the sound 6 cm. from the external os two months after delivery. Dystocia by a ring has also occurred in three successive labours in the same patient (Smith), and has been noted with the second of twins (Smith, Williamson) and the last of triplets (Smith).

Abdominal palpation as a means of differential diagnosis.—Several writers state that the retraction ring is more easily palpable per abdomen than a contraction ring, but the contraction ring has frequently been felt on abdominal examination (Dickinson's third case, Hicks's first case); thus it appears doubtful if this will be of practical help in making a differential diagnosis.

General condition of the patient.—When seen early, before being exhausted by fruitless obstetric operations, the patient with a contraction ring is in good condition compared with the exhausted state of a patient with obstructed labour.

Causation.—1. Premature rupture of the membranes. This is the most constant factor in records of cases. 2. Intra-uterine manipulation. These are also very frequent, but it must be noted that unless some intra-uterine manipulation had been done the diagnosis could not have been made. The use of hydrostatic bags has been alleged by Commandeur[9] to cause the condition, but is unimportant. When used in cases of placenta prævia the abnormal condition of the lower segment produced by the low insertion of the placenta is probably of more importance than the bag. 3. Increased irritability of the uterus. It is obviously necessary to presuppose the existence of increased uterine irritability in addition to the two factors mentioned to explain the infrequent occurrence of contraction rings. 4. Mal-presentations. All forms are common. Cheron's statistics are: Vertex, 62 per cent.; shoulder, 21·4 per cent.; face, 7·0 per cent.; and breech, 8·9 per cent. De Bovis and Jardine lay stress on the frequency of incomplete breech presentations. 5. Maceration of the fœtus and infection of the uterine contents. Zweifel[24] drew attention to this in reporting a case. About 10 per cent. of recorded cases have been delivered of macerated children. 6. Uterine inertia. A long first stage with weak pains is usual in these cases. Blacker[2] lays stress on the association of uterine inertia with trismus of the cervix. 7. Parity. In some 100 cases which I have found in the literature it is twice as common in multiparæ as in primiparæ.

Prognosis.—Dickinson concludes that in well-marked cases one-third of the mothers and one-half of the children die. The present series (excluding laparotomy cases) shows a mortality of 38 per cent. and 63 per cent. In 19 cases treated by laparotomy (excluding one death from eclampsia) the mortality is 31·5 and 42 per cent.

Three cases of labour with this complication have come under my observation. The first patient was aged 38, and had had two previous children (one normal delivery and one forceps). Labour started about mid-day on May 18th, 1907, the membranes ruptured at 10 P.M., and high forceps were applied by her medical attendant, but failed; at 1 A.M. version was attempted, but only one leg could be brought down as far as the brim. At 3.30 A.M. she was admitted to Queen Charlotte's Hospital under the care of Dr. A. F. Stabb. Pulse 128, temperature 97·4° F. General condition good. The uterus was relaxed and like a case of secondary uterine inertia; the fœtal parts could be easily palpated. No ring felt on abdominal examination, but on vaginal examination a marked contraction ring could be felt. The child presented by the head and feet, the body being arched over the fundus. The whole child, including the head, was above the ring. The ring ran round the uterus about 2 inches above the brim and prevented the head engaging. The fœtal parts were moveable, but even pressure on the head applied through the abdominal wall could not bring the head down into the brim. I repeatedly attempted to deliver by craniotomy, but failed to get the head past the ring, and finally ruptured the uterus through the posterior wall; the tear involved the ring. The child was now easily delivered by version, the placenta removed by hand, and the tear plugged with gauze. The patient died from shock shortly after delivery. No post-mortem examination was obtained.

The second patient was aged 31 and had had five children. She was admitted to Queen Charlotte's Hospital under my care on account of a placenta prævia on July 15th, 1912. The child presented by the vertex. At 8 P.M. the membranes were ruptured and a de Ribes bag was inserted; at 9.30 Dr. W. Gilliatt, the senior resident officer, reported that the bag had been expelled, but on attempting version he had found a contraction ring 2½ inches in diameter above the place where the bag had been and 4 or 5 inches from the cervix. The placenta was partly below it, but the whole child was above it. The child being dead I advised craniotomy and cautious traction; this, together with cleidotomy, effected delivery. The third stage was normal. The child (after perforation) weighed 5¼ lb. The mother did well.

The third case is the one from whom the specimen here described was removed. The history of the case is as follows. The patient was aged 34 and had had five normal labours. Her fifth labour started on July 31st, 1912; the membranes ruptured the next day and feeble pains continued till August 4th. Her medical attendant then found an arm prolapsed; he brought down a leg but failed to get the child to move as a whole. The contraction ring could be felt, but it was possible to get the hand beyond it. The patient was then sent to University College Hospital. On admission at 2 P.M. her pulse was 84 and her temperature 99·2° F. The uterus was contracted but relaxed at intervals and was not tender. Fœtal heart was not heard. Chloroform was given, and version was attempted by Mr. D. Twining, the resident obstetric assistant, but was not persisted with when the contraction ring was felt. Morphia (¼ gr.) was given. In the absence of the obstetric physician I saw the patient at five o'clock. Her general condition was very good; uterus contracting but not tender; the round ligaments were not standing out. Bandl's ring was not felt per abdomen. Per vaginam, the lower uterine segment was not tense or thin, a foot and hand were presenting, but the presenting parts were not jammed down at all tightly into the brim. The cervix was fully dilated, so that the position of the external os could not be identified. A tight ring could be felt contracted round the arm; the lower level of the ring was so high that it could only be felt when the whole hand was introduced into the vagina. The ring was so tight that the finger could not be passed beyond it and the use of any instrument for a

destructive operation was out of the question. A culture was taken from the cervix and showed staphylococci. The patient had been torpid with morphia for two hours, and yet, even when chloroform was pushed to its full extent, no relaxation of the ring occurred. The abdomen was, therefore, opened and the uterus, with the fœtus inside, was removed entire. The ovaries were healthy and were not removed. Before cutting through the vagina curved clamps were put on to the cervix as far as the prolapsed arm would permit in order to prevent the contents of the uterus from soiling the peritoneum. The convalescence was without incident.

The specimen was at once put into formalin to harden; the hardening process was completed by injecting strong formalin into the tissues of the fœtus.

Description of the specimen.—The specimen shows the two halves of a full-term pregnant uterus divided in sagittal section. The vagina has been cut through at its junction with the cervix. The fœtus has been removed from the left half; in the right half the fœtus is still *in situ*. The specimen measures 25 cm. in length. Its antero-posterior measurement is 15 cm. at its widest part and 9·5 cm. at its narrowest below. Externally, no ridge or furrow is to be seen, but a ring can be seen running round the interior of the uterus at the junction of the lower and middle thirds. It runs obliquely, so that in front it is 2 cm. higher than it is behind. The ring measures 3·5 cm. to 5·0 cm. from above down, and from 1·5 cm. to 1·7 cm. in thickness, this being an increase of 5 mm. to 8 mm. on the wall above and 8 mm. to 10 mm. on the wall below. The fundus is 9 mm. thick. The ring is most sharply defined on the left side, where it constricted the child's neck. The child is almost wholly above the ring, and is lying in a very contorted position; the head is in the left half of the uterus, midway between the cervix and the fundus, and immediately above the ring. The ring thus constricts the neck and thorax. The right arm is prolapsed into the vagina, the left is above the head. The left leg is prolapsed beside the right arm, the right foot is at the highest point of the uterus, the leg lying along the anterior wall. The neck is deeply grooved where the ring had compressed it. The child is a male and weighed (after hardening) 5¼ lb. The placenta lies on the posterior wall near the fundus and wholly above the ring. Microscopic sections were made of the wall of the uterus at various parts of the ring, but all histological detail had been destroyed by the strong hardening reagents that had been employed to harden the specimen.

Treatment of dystocia by a contraction ring.—1. Expectant. This is useless, as in a severe case the condition persists. Budin waited 36 hours in one case, but the ring did not relax. 2. Drugs. (*a*) Anæsthetics. Acting on the supposition (probably incorrect) that the condition is one of pure spasm, both chloroform and ether have been tried very fully, but have entirely failed to relax the ring in severe cases. (*b*) Sedatives. Morphia has failed even in large doses. Chloral hydrate has not been given any extensive trial, but from its action in cases of trismus of the cervix might be of use. (*c*) Isolated cases are recorded where other drugs have apparently done good. Souter[22] claims to have obtained in two cases a temporary relaxation of a tonic uterus which enabled version to be successfully performed by administering 10 minims of amyl nitrite by inhalation. Williamson suggested atropine, but had not tried it. Hyoscine hypodermically failed in Watts's case.[23] Hot baths are said to have caused relaxation in one of Budin's cases. 3. Dilatation of the ring. (*a*) Manual. In the slighter cases this frequently succeeds. Budin suggested leaving the hand *in situ* to give the head an inclined plane to roll up. In severe cases the fingers cannot effect dilatation. (*b*) Instrumental. Bowen[5] and Hahl tried these and failed. (*c*) Dilatation by traction. "Willett's continuous weight traction." This ingenious method is limited to cephalic or breech presentation. An instrument (i.e., craniotomy forceps) is fixed to the fœtus and a weight traction of 6½ lb. suspended. It succeeded well in his case. 4. Forceps. These are limited to cephalic presentations with the head below the ring. In the more severe cases they fail entirely. The head is suspended by the ring round the neck, and in the majority of cases as soon as traction is made they fall off. Demelin, from experiments made, advises application over the occiput and face, so as to avoid the movements at the occipito-atlantal joint which cause them to slip off as soon as traction is made on the suspended head. If a good grip is obtained the usual effect of traction is to drag the uterus as a whole down towards the vulva. Rupture of the uterus from the use of forceps has been known.[10] 5. Embryotomy. All writers agree that the embryotomies for this condition have been extraordinarily difficult from the high position of the head and the difficulty of getting the instruments past the ring. After perforation of the head the shoulders are held back if the ring is round the neck and traction by craniotomy forceps only moves the uterus as a whole. Cleidotomy is, therefore, indicated in every case where the ring is round the neck of a dead child.

Cases Treated by Abdominal Section.

Operator.	Parity.	Presentation.	Treatment.	Result.		Notes.
				Child.	Mother.	
Cameron.	?	?	Cæsarean section.	* L	L	Recorded by Jardine.
Champneys.	M_2	?	,,	D	D	Death from eclampsia.
,,	P	Vertex.	,,	D	D	Death from peritonitis. Both recorded by Routh.[27]
Dickinson.	M_1	,,	,,	L	L	—
Gilles.	P	,,	,,	L	L	Ring incised during the operation.
Holden.[16]	P	Brow.	,,	L	L	Ring incised during the operation.
Jardine.	M_4	Vertex.	,,	L	L	—
Phillips.	M_2	Transverse.	,,	D	L	Transuterine embryotomy required in both cases before the child could be delivered. Both recorded by Routh also by Holland.
,,	M_{11}	,,	,,			
Watt.	P	Vertex.	,,	L	D	In both cases the patient died from sepsis.
,,	P	,,	,,	L	D	In both forceps failed to deliver and in both the ring required incision and persisted after delivery of the child. Recorded by Dickinson.
Boquel.	M_{12}	Transverse.	Cæsarean section and subtotal hysterectomy.	L	L	Child died from meningeal hæmorrhage the same day.
Duchamps.	P	Vertex.	Cæsarean section and vaginal hysterectomy.	L	L	Ring required incision.
Gaulaud.[12]	M_9	Transverse.	Embryotomy and hysterectomy.	D	L	The uterus was ruptured during embryotomy and then treated by hysterectomy.
,,	M_1	,,	Porro.	M*	L	Uterine contents infected.
Rudaux.	P	,,	,,	M*	D	Mother died 7th day from peritonitis.
Sinnetamby.	M_1	,,	Cæsarean section and hysterectomy.	L	D	Mother died after 34 hours.
Andrews.	M?	Vertex.	Partial embryotomy and excision of gravid uterus.	M*	D	Death from exhaustion after difficul embryotomy.
White.	M_6	Transverse.	Excision of gravid uterus.	D	L	Specimen Nos. 583, A, B, and C, University College Museum.

* Macerated.

Andrews and Gaulaud[12] record cases where embryotomy has failed to deliver the patient.

Cæsarean section.—Cæsarean section is indicated where the ring is wholly below a living child. In other cases, if simple traction or manual dilatation fails, it is preferable to embryotomy if the child is alive. In considering Cæsarean section it must be remembered that the embryotomy is always a very difficult one, and the death-rate from abdominal section has been due to sepsis excepting Andrews's case, where the patient died of exhaustion, and Champneys's case of eclampsia (*vide* Table). In performing the operation it is often difficult to extract the child. Thus all extraperitoneal Cæsarean sections are contraindicated, and in septic cases the operations indicated are Cæsarean section followed by hysterectomy if the child is alive, or excision of the gravid uterus unopened if the child is dead.

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New Cavendish-street, W.

A SUMMARY OF 340 CASES OF PULMONARY TUBERCULOSIS TREATED DURING 25 YEARS' PRACTICE.

BY J. C. VOIGT, M.D. EDIN.

THE cases which are here summarised were all treated in private practice at Southport between August, 1887, and August, 1912.

From 1887 to 1891, 62 patients—some of them residents of Southport and Birkdale, but the larger number cases of phthisis from other parts of Lancashire, from Yorkshire, or the Midlands—were treated by guaiacol, given in mixture, with small doses of quinine and rectified spirit.

From October, 1891, to the end of the following year, 1892, intralaryngeal injections of eucalyptol, thymol, and balsam Peru in castor oil, as then used at the Victoria Dispensary for Tuberculosis, Edinburgh, where I had attended the post-graduate course in 1891, were given either in conjunction with the guaiacol treatment or apart from this. The number of cases treated was 35.

From January, 1893, to Dec. 31st, 1895, more than 50 cases were treated with guaiacol, some of these also receiving intralaryngeal injections of thymol, eucalyptol, balsam Peru, and castor oil. During the same period and previously (in 1891) rectal injections of eucalyptus oil in olive oil were also administered in some cases. No complete record of the number thus treated has been kept, but a brief report of the first case and of four cases of influenza treated in the same way was published by me in THE LANCET of April 9th, 1892.

From Jan. 1st, 1896, to Dec. 31st, 1902, I prescribed for 67 cases of incipient and moderately advanced phthisis. I treated them all with guaiacol, either in mixture with small doses of rectified spirit of wine and quinine, or in the form of capsules or Oppenheimer's palatinoids of guaiacol carbonate, or simply with guaiacol carbonate powder in water.

From 1902 to 1912 tuberculin was used in hypodermic injection. At the same time, in most cases thus treated guaiacol was also administered. The number of cases treated by the combined tuberculin and guaiacol method during the 11 years was 126.

A very large proportion of the 340 cases under treatment during the 25 years having been resident in Southport only temporarily—i.e., while they were under treatment here—I found it difficult to follow up my records and to draw conclusions from comparing the results of the different remedial methods employed. Of 150 cases—mostly non-residents—who were here for treatment during the pre-tuberculin period (1887–1901), and who for various reasons could not remain under observation, no further record is now possible; 38 others were stated by relatives and former neighbours to be still resident in Southport and Birkdale a year after last receiving treatment, but no further particulars could be ascertained; 19, when last heard of, were residing in other parts of the country; while 3 were at sea, intending, it was said, to come back to this country. It could not be definitely ascertained how many out of the 22 thus traced, if any, were receiving treatment of any sort in August, 1912. Patients to the number of 57—most of them treated here during the tuberculin period (1902–1912) with tuberculin as well as with guaiacol—are now in various sanatoriums and hospitals in this country or abroad; 39 others, I have ascertained, are still having domiciliary treatment in various parts of Lancashire, Yorkshire, or the Midlands, Switzerland, South Africa, Australia, California, and New Zealand. Of the remaining 34, 11 died in Southport or Birkdale chiefly during the pre-tuberculin period (1887–1902); 2 died here during the tuberculin period (1902–1912), and 2 died in South Africa (during the pre-tuberculin period). Three died from catarrhal pneumonia complicating influenza more than a year after treatment for tuberculosis (by guaiacol, quinine, and rectified spirit mixture) had ceased, each case being entered in the record book as cured of pulmonary tuberculosis; 1 was killed in a railway accident, also after all treatment had ceased on the disease being arrested. Three out of these last 4 cases were residents of Southport; 2 had been under treatment for over 11 years and the third for nearly seven years. None of them had ever had tuberculin. The fourth patient came to Southport from Manchester, where she had been previously treated for tuberculosis.

Fifteen others are entered in my case books as cured—i.e., as cases in which the disease has become arrested. Three of them—local residents—had two years' tuberculin and guaiacol treatment, with formalin inhalations, after having previously had from 7 to 12 years' treatment with guaiacol without tuberculin. In all three cases the temperatures have been normal for over six months, all cough and expectorations have ceased, and there has been a steady increase in weight during the last year. The physical signs indicate that the disease is arrested. Two of the remaining 12 patients are in South Africa; they have been there for over five years and are in good health. They both had guaiacol and quinine treatment here from me, without tuberculin, before they went to the Cape. Two others have been to South Africa, after more than a year's treatment here, and have returned to this country; one lives in Wales and the other in Manchester, and both are well. Another patient, in whose case the disease has become arrested after over a year's treatment here with guaiacol, without tuberculin, is now in New Zealand; another is in Australia. One patient who has been resident in California for about a year and has now returned, has been quite free from symptoms of phthisis for over a year. Another patient, acting on my advice 23 years ago, came to reside here, and has been under guaiacol treatment (without tuberculin) for more than 20 years. There is in this patient's case an encysted cavity at the left apex, but the disease is arrested.

The following is the form of prescription for guaiacol mixture given in most of these cases, with or without guaiacol carbonate capsules or "palatinoids."

℞	Guaiacol pur.	♏ 30–40
	Quin. hydrochlor.	Gr. 20–25
	Sp. vin. rectif.	ʒ ii
	Tr. gentian. co.	ʒ iii
	Aq. ad ʒ viii.	

Sig.—Half a teaspoonful gradually increased to two teaspoonsful be given, well diluted with water, three times daily, after meals.

The small dose of guaiacol thus administered was increased gradually by the addition of guaiacol carbonate. The guaiacol itself was given in rectified spirit of wine because it was found to agree better with the stomach when thus dissolved and subsequently diluted with water.

Although it is true that opium and arsenic, e.g., are poisons when given in overdoses, still we do not, merely on that account, taboo them as valuable remedial agents. Similarly, because alcohol is a poison to the amœba when it bathes in saturated solutions of it *ad libitum*, or to the dipsomaniac when he "sups" it in bucketsful, it does not necessarily follow that, when given medicinally and in properly measured and limited medicinal doses, it will kill or even injure white blood corpuscles or beneficent phagocytes standing sentinel against the inroads of the tubercle bacillus. On the contrary, there is perhaps sufficient evidence to say that by inhibiting injurious intestinal fermentative changes, which probably favour autotoxæmia, alcohol when thus administered may be a valuable aid in defending the system against infection. The difficulty for the amœba or for the white blood corpuscle is to know what is the proper medicinal dose. For when even a scientific "Band of Hope" lecturer seems to imply, if we may judge from his answer to an anxious inquirer at the close of a lecture delivered in Liverpool, that a tablespoonful of whisky can be taken with impunity after every meal, there may be some excuse after all for the dipsomaniac amœba—for the white corpuscle which does not know where to stop. When attending the post-graduate course at Edinburgh in September, 1891, I found that Dr. (now Sir) R. W. Philip, in the clinique at the Victoria Dispensary for Tuberculosis, advised alcohol to be given in cases with fever temperatures, where it was not contraindicated by renal or cerebral complications.

As to tuberculin, I did not use any before 1901. Ten years previously I had asked Professor A. Fraenkel, when I was studying in his post-graduate course at the Moabit Hospital in Berlin, to show me cases of phthisis treated by tuberculin. He told me that he had none to show me, because he was not using tuberculin, having been disappointed, a few months previously, at the time of the first rush for tuberculin treatment. At Edinburgh, also, in the same year (1891), no tuberculin was being used by Dr. Philip. Subsequently, when the initial difficulties with Koch's tuberculin had been overcome, when the product had been standardised, and the safe initial doses for both old and new tuberculin found, I commenced employing the remedy in my practice here, at first in one or two cases of surgical tuberculosis—cervical glands, &c.—and afterwards also in phthisis pulmonalis. The tuberculin used was in all cases Koch's new tuberculin, T.R. The initial dose was a small one (1/100000 mgm. or 1/80000 mgm.) in the majority of cases. This was followed three or four days later with from 1/80000 to 1/60000 mgm. according to the amount of the previous dose, and provided all general reaction had ceased if there had been any. Three or four days later the dose was increased by another 1/20000 mgm. and so on, the temperature being invariably taken on the same evening as well as in the afternoon and evening of the two following days, and if there was the slightest rise above the normal the dose was not increased on the fourth day. Subsequently the temperatures were taken every two or three hours.

The intralaryngeal injections of antiseptics were given up after a year or two, because the results obtained with this method of treatment did not appear to be as favourable as those following the guaiacol treatment.

After August, 1912, the method of tuberculin treatment above described has been almost entirely replaced by the German intensive treatment of doubling the dose every four days whenever the temperature observations, made every two hours, indicated such a course of procedure—i.e., when no rise of temperature had followed the previous dose—and ultimately going on to the larger doses of 1, 2, 4, &c. mgm. up to half a cubic centimetre of T.R. The results have been better than by the old method of treatment.

Southport.

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE UNION SOCIETY.—The Foundation oration on Lister and his Work will be delivered by Sir Rickman J. Godlee, Bart., F.R.C.S., in the Botanical Theatre, on Thursday, March 13th. The reception by the President will take place at 8.30 P.M., and the oration will be given at 9 o'clock. Academic dress will be worn.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SYRINGOMYELIA, WITH A NOTE ON THE CAUSES OF WEAK SHOULDER.

BY V. ZACHARY COPE, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO OUT-PATIENTS, ST. MARY'S HOSPITAL, W.

THE patient, aged 40, was sent by Dr. Galway Murray to my out-patient clinic on Dec. 11th, 1912, complaining of an increasing loss of power to raise the left arm. He gave no history of accident or illness. The symptoms had begun six weeks previously.

On examination he was found to be a man of average nourishment, without any special signs of muscular wasting over the affected region. He was unable to raise the left arm above a right angle in the abducted position. Fibrillary tremor was noticed in the deltoid, which was evidently weaker than normal, though the fibres were seen to be contracting to the voluntary stimulus. There was some slight creaking felt in the shoulder-joint. There was no tactile anæsthesia detected, though careful test was made, especially in the area of exclusive supply of the circumflex nerve. In flexion and extension at the shoulder the scapula appeared to move with the arm. The serratus magnus was acting, as also the trapezius. No abnormality was discovered in the triangles of the neck. The patient gave no history of syphilis, and his occupation did not bring him into contact with lead. The pupils reacted to light and the knee-jerks were brisker than normal. There was no ankle-clonus or plantar extensor response.

The above investigation excluded the surgical causes of weak shoulder, so I sent the patient to Dr. Wilfred Harris, my colleague who is in charge of the neurological department at St. Mary's Hospital, and his report was as follows: "There is paresis of the left deltoid and infraspinatus, and a wide area of analgesia from the region of the second cervical down to the fifth lumbar nerves, escaping the arms to a certain degree. There is partial reaction of degeneration of the deltoid of which the reaction to faradism is diminished, and the anodic closure contraction is equal to the kathodic closure contraction."

The diagnosis was clearly syringomyelia, and confirmation of this was forthcoming in the fact that the patient could not distinguish between heat and cold when applied over the cutaneous areas presenting the analgesia, especially in the shoulder regions. In the dorsal region and over the arms (with the exception of the deltoid area) the sensory abnormalities were but slightly marked. No other abnormal symptoms were present in this case, which illustrates syringomyelia in a comparatively early stage. The interest lay in the diagnosis from other causes of weak and stiff shoulder. The causes of a chronic weak or stiff shoulder may be roughly classed under five headings: 1. Intra-articular causes. This includes the various forms of chronic arthritis, especially tuberculous, rheumatoid and osteo-arthritis. Also adhesions following traumatic synovitis. 2. Juxta-articular causes. This includes subacromial bursitis, old unreduced dislocation at the shoulder-joint, and upward subluxation of the clavicle at the acromio-clavicular joint. 3. Muscular causes. 4. Neuritic causes. 5. Central nervous causes.

In the elucidation of this case the first group of causes were excluded by the absence of pain and the free passive movement permitted at the joint. The second group were negatived by the absence of any previous injury. Of the causes under the fourth heading a mixed neuritis would have been accompanied by pain owing to the involvement of the sensory fibres, whilst a pure motor neuritis is only found in lead poisoning, of which there was no indication. Injury to the circumflex nerve was excluded by the absence of any history of trauma. In deciding between intrinsic muscular causes and central nervous causes the electrical reactions of partial degeneration pointed to a spinal lesion, which was also suggested by the increased knee-jerks. The dissociated

anæsthesia served to exclude progressive muscular atrophy and pointed definitely to syringomyelia. Such a case as this shows the great importance of a careful neurological examination in any doubtful case of weak shoulder.

Electrical treatment has resulted in very marked improvement, for the man can now easily lift up his left hand well above the head.

Weymouth-street, W.

NOTES ON A CASE OF TYPHOID FEVER, WITH PARTIAL PARALYSIS OF THE THIRD NERVE AS A COMPLICATION.

BY JOHN LAMBIE, M.D. GLASG., D.P.H.,
ASSISTANT MEDICAL OFFICER OF HEALTH, RHONDDA URBAN DISTRICT.

HAVING read an account of a case in which paralysis of the third nerve occurred as a complication of typhoid fever, in THE LANCET of Jan. 25th, p. 261, I have decided to publish these notes on a case presenting many similar features.

The patient, a girl aged 16, was admitted to the Rhondda Isolation Hospital on Oct. 29th, 1912, this being about the fourteenth day of illness. Previous to admission there had been shivering, headache, and anorexia, but no diarrhœa. On admission the patient appeared fairly well nourished, the tongue was covered with a coating of white fur and was moist, and nothing abnormal was detected in the abdomen. Rhonchi were heard all over the lungs, and occasional moist crepitations at the bases. The heart sounds were normal.

From the day of admission till Nov. 15th the progress of the case was uneventful, but no sign of defervescence appeared. During this time the temperature never fell below 100° F., and varied between that limit and 102·8° which was the highest temperature recorded. The temperature fluctuated daily, usually about one degree, but sometimes as much as two degrees. The pulse-rate varied from 104 to 116 per minute. The patient's mind remained perfectly clear during this period. The bowels were constipated throughout, and were opened regularly by enemata. The Widal reaction was positive, but no other definitely positive sign of typhoid fever was manifest throughout the illness. On Nov. 15th the patient vomited several times, and during the following day there was a good deal of retching, but no further vomiting. On the 17th very severe headache was complained of, and from that time on the patient suffered from considerable mental derangement, unlike the usual typhoid delirium, but resembling the form of mania which one occasionally sees in typhoid patients, especially in young subjects. She was perverse and childish, and slept but little. On the 20th an erythematous rash appeared on the face and arms, which was possibly accounted for by the fact that bromides had been administered.

On Nov. 21st photophobia was noted, and there seemed to be a general hyperæsthesia, the patient calling out loudly when touched. On the 22nd ptosis of the right eyelid appeared. Both pupils were dilated, but reacted to light and to accommodation, and no squinting was observed. There appeared to be paralysis in some degree of all four limbs, and the action of the diaphragm seemed to be partially in abeyance, but no pulmonary symptoms supervened. The knee-jerks were absent. There was retention of urine, necessitating the use of the catheter, and an enema given the day before having failed to act another was now given, but this again failed to produce the desired result. Two grains of calomel were then given, and this dose was repeated four hours later. On the 23rd the patient was in a condition of stupor, but had passed urine several times incontinently, and several small loose stools also incontinently. On the morning of the 24th ptosis of the left eyelid was noted, and both pupils were widely dilated and fixed. Difficulty in swallowing was noted during the night, and up to the time of death. The patient died at 2 P.M. on the 24th. There was no rise in the pulse-rate till the 22nd, when it began to rise and continued to rise till the end came. The temperature was on the average lower after the onset of headache on the 17th than before, and at no time did it reach the previously mentioned limit—viz., 102·8°. Permission to make a post-mortem examination was not obtained.

Observations.—A post-mortem examination in this case was very desirable, both for the purpose of confirming the diagnosis of typhoid fever, and for ascertaining the nature of the lesions giving rise to the nervous symptoms observed. The parents were unwilling, however, and it was not considered advisable to press the matter. With regard to the diagnosis, up to the onset of the nervous symptoms I regarded the case as one of typhoid fever, and that of a favourable type. The nervous symptoms as described, however, I am unable to satisfactorily account for. There was no retraction of the head, and Kernig's sign was absent. The mental condition of the patient rendered it difficult to determine the exact amount of paralysis present. There were, however, flaccidity and entire absence of motion in both legs and in the left arm, but some power of motion was observed in the right arm.

I have to thank Dr. J. D. Jenkins, medical superintendent of the Rhondda Isolation Hospital, for permission to publish these notes.

Pentre, Glamorgan.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Discussion on Cervical Rib.—Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 14th, Sir WILLIAM OSLER, the President, being in the chair.

Dr. F. WOOD JONES opened a discussion on Cervical Rib. Speaking from the anatomical point of view, he said that a review of the vertebrate series warranted the assertion that the rib series, which was complete in limbless animals, tended to become incomplete with the development of limbs. A snake had no limbs, and possessed neither neck nor waist; but with the rising functional importance of the limbs in lizards a neck and a waist were developed, and ribs became limited to a definite portion of the body. The ribless neck and ribless loins were the outcomes of the functional perfection of the pectoral and pelvic limbs, or, in other words, the ribs were stripped from the vertebral column opposite those segments from which the limb buds arose. The reason for this was seen in the developing embryo. At first, segmental nerves ran to a limb bud which was coterminous with the body segments from which it arose. But as growth proceeded the segmental nerves grew apart at their origin from the spinal cord, and became focused in the limb bud which ceased to keep pace with the antero-posterior growth of the body segments from which it arose. In this manner the mesoblastic intersegments became aborted between the converging nerves which formed the limb plexus, and mesoblastic intersegmental ribs were shorn from the neck and loins by the outgoing limb nerves. There was thus an antagonism between the development of a limb plexus and the development of ribs extending over that area from which the limb bud arose. The normal antagonism was manifested by the aborted costal elements of the normal cervical vertebræ, by the deep nerve groove which abbreviated the seventh cervical rib, and by the groove (so-called sulcus subclaviæ) which marked the upper surface of the normal first thoracic rib. A limb bud might arise nearer to the head or nearer to the tail than was normal, and its limb plexus might be of the prefixed or the post-fixed type. With either variation costal anomalies might result. Prefixation might proceed so far that the plexus readjusted itself at a higher level with the development of a seventh cervical rib. Post-fixation might proceed so far that the plexus readjusted itself at a lower level with the abortion of the first thoracic rib. Or there might be a disharmony between nerve movement and rib development, and brachial neuritis might be caused by an abnormal pressure produced by a somewhat post-fixed plexus on a first thoracic rib or by a somewhat prefixed plexus on a seventh cervical rib. The antagonism between plexus formation and rib development accounted, by the pressure exerted on the lowest cord of the plexus, for the sensory and muscular symptoms displayed in such cases. It also accounted for the vascular symptoms; for the sympathetic vascular nerves ran for the most

part in the lowest cord of the plexus, and vascular changes were due to trophic changes in the vessels of the arms. Symptoms in all cases came on late because the shoulder girdle dropped relatively to the thoracic cage in adolescents (and in people with atonic muscles); in women the shoulder girdle fell further than in men. By this fall the strain on the plexus as it passed over the costal element was increased. Patients with brachial neuritis from rib pressure were relieved by elevation of the shoulder girdle. This explained the comfort derived from an "arm" chair, and accounted for patients lying, as a rule, upon the affected arm in order to raise the affected shoulder girdle. Symptoms might be produced by cervical ribs or by first thoracic ribs, depending on the constitution of the brachial plexus. The diagnosis between these conditions was not always made in clinical work. By radiography a definite diagnosis as to the nature of the offending costal element could be made, and only be made, by a count of the vertebral elements lying cephalic to the costal process.—Mr. W. THORBURN spoke of the condition chiefly with regard to its surgical treatment. Having briefly referred to the symptoms produced by it he considered the indications for operation. As a mere deformity the ribs would seldom, if ever, require to be removed. He had no personal experience of operation for purely vascular troubles, but would operate for marked anæmia, congestion, or threatened gangrene, all of which were rare. Pressure upon the brachial plexus might cause pain only or might be associated with paralysis, cramps, and anæsthesia. In all cases of even moderate severity operation was advisable, as they never recovered spontaneously and often became worse with great rapidity. He analysed the results of 20 personal operations. There were no serious difficulties. A transient paralysis of the brachial plexus and suprascapular nerve were met with in three cases, and the pleura was twice wounded without after ill-effects. He had once removed the first dorsal rib in error but with perfect functional result. All the cases were improved and complete cures were obtained in about one-half. The atrophy of the hand muscles and a loss of temperature sense were apt to be permanent. As regarded the method of operation his experience led him to prefer a long vertical incision at the back of the posterior triangle of the neck with dissection forwards rather than backwards.—Mr. PERCY SARGENT communicated a paper also chiefly on the results of surgical treatment. He attached less importance to the size of the bone as shown by the X rays than to the direction in which it projected. He had operated upon 29 cases and performed 34 operations, 5 being operated upon on both sides. Twenty-six of the patients were females and 3 males. Pain was usually the first symptom. Excessive exercise caused the symptoms in the majority. Symptoms were more commonly on the side of the smaller rib than on the other. Asepsis and gentleness in manipulation were essential to the operation, but it was not always necessary to remove the rib, division of the continuing band being sufficient in many cases. In only one case was the pain unrelieved.—Dr. S. A. K. WILSON said that the symptoms were often on one or other side of the arm and hand and not on both. The pain was complained of as travelling down the arm, not in the opposite direction. He laid stress on dissociation of the muscles of the hand as regards their wasting, particularly as a means of differentiating the condition from progressive muscular atrophy and allied conditions. Whilst the abductor pollicis and opponens pollicis were often atrophied, frequently this was not observable in the flexor brevis pollicis or adductors of the thumb, nor in the interossei muscles. He showed several photographs to illustrate this point.—Dr. E. FARQUHAR BUZZARD spoke of a similar dissociation of muscles undergoing atrophy in the condition. He said that the pain might be of any degree and any distribution, and he had met with many instances of acroparæsthesia. In one an operation had afforded relief. Another was relieved without operation. Some patients presented themselves with what appeared to be an occupation neurosis. The question of occupation was important and several had obtained relief by giving up some particular form of work. He doubted whether there were any characteristic sensory symptoms in "cervical rib."—Twelve clinical cases of cervical rib were shown, all in women. Of these ten had been operated upon, nine with beneficial effect; in one case the result had been unsatisfactory. Of the remaining two, one had improved without operation, and the other remained *in statu quo ante*.

Sir STCLAIR THOMSON showed a case of Intrinsic Cancer of the Larynx after Laryngo-fissure, in which the growth appeared to have been completely removed by the endolaryngeal operation. The patient, a woman, aged 53, had been hoarse for eight months, when she was sent to him on Oct. 19th, 1912. The right vocal cord was replaced by reddish cauliflower masses. This somewhat impeded the movement of the cord, but it was not in itself fixed. Both arytenoids were mobile; there were no glands, and the Wassermann reaction was negative. As the growth did not infiltrate the cord, and as it projected above it, he decided to remove a portion for microscopic examination. The toughness and naked-eye appearance were confirmatory of his suspicion of malignant disease, and the examination by Dr. W. d'Este Emery showed a typical epithelioma. On Nov. 28th, 1912, anæsthesia was induced by Dr. J. F. W. Silk by means of intravenous infusion of ether and hedonal administered through the internal saphena vein. The usual laryngo-fissure operation was carried out; no Hahn's tube was used, and the remains of the right cord, right ventricular band, and vocal process of the arytenoid were dissected up on their perichondrium and removed *en masse*. The tracheotomy tube was removed before the patient left the table. She was sitting up in 48 hours and taking solid food, and returned to the country a fortnight after operation. Towards the end of January, 1913, the patient began to show symptoms of what many would have taken to be a recurrence of the growth. But he had no anxiety, chiefly because of experience with previous cases in which a regrowth during the first two months nearly always proved to be a simple granuloma. In this case it was removed through the mouth a fortnight ago, and was found to consist of simple granulation tissue, showing no epithelioma or sign of malignant disease in any part of the section. The case was brought forward (*a*) to show how very favourable for operation is the pathological anatomy of epithelioma of the vocal cord; (*b*) to give support to those who claimed to have effected a lasting cure of intrinsic cancer of the larynx by endolaryngeal operation; and (*c*) to show that re-growth in early days after thyrotomy was not necessarily malignant. It was not suggested that endolaryngeal operation for cancer should ever be relied upon. This would be a dangerous doctrine, although it might have proved successful in the present instance.

Sir STCLAIR THOMSON also showed two cases to illustrate the advantages of Lateral Rhinotomy (Moure's Operation) in dealing with Malignant Growths of the Nose and Accessory Sinuses.

Dr. F. PARKES WEBER showed: 1. A case of Nephritis in Secondary Syphilis. The patient, a young man, was admitted to the German Hospital in December, 1911. Four months before admission he had had a primary syphilitic chancre on the penis, and he had been treated by intragluteal mercurial injections. Ten days before admission the signs of nephritis had been noticed by the medical practitioner who was treating him. No secondary syphilitic eruption had been observed. In the hospital, after admission, the patient felt fairly well, but he had slight ascites and œdema of the sacral region. The urine varied from 600 c.c. to 1200 c.c. per diem, and was of high specific gravity (1024 to 1033), and very rich in albumin. By Esbach's tube the albumin was estimated at about 22 per 1000; there was no sugar. Microscopical examination of the centrifuge sediment showed the presence of hyaline tube-casts (containing also granules), but no real granular or epithelial casts, and no blood; there were a few epithelial and white cells. The blood serum gave a positive Wassermann reaction. A striking feature of the case, as in typical cases of supposed secondary syphilitic nephritis, was the very large amount of albumin in the urine. In the second half of January, and for a long time afterwards, there was general dropsy with ascites and bilateral hydrothorax; the latter condition needed occasional paracentesis, especially on the left side. In the second half of April it was noted that the urine (about 1500 c.c. in 24 hours) contained about 10 per 1000 albumin. The left pleura was tapped for the two last times in September, on which occasions respectively 1550 c.c. and 550 c.c. of nearly clear fluid were withdrawn. By Oct. 7th the patient was up most of the day. He looked well

and had no ascites or general œdema, but there was still considerable dulness at the base of the left lung. The urine averaged about 2370 c.c. per diem, containing about 4 to 6 per 1000 albumin. On Nov. 16th it was noted that the urine for the past week averaged about 2300 c.c. per diem (specific gravity about 1010), with only about 2 per 1000 of albumin. The systolic brachial blood pressure was then only 90 mm. Hg. The patient was discharged on Dec. 20th, 1912. There was still a great deal of dulness at the base of the left lung, apparently due to thickened pleura. The urine then averaged about 2500 c.c. per diem (specific gravity about 1011), with 2 per 1000 albumin. The heart was not obviously hypertrophied. Pulse 80 to 96 per minute. Brachial blood pressure 95 to 100 mm. Hg. No tube-casts were found when the urine was microscopically examined before the patient left the hospital. The blood serum, when tested again in December, 1912, gave a negative Wassermann's reaction for syphilis. The treatment adopted at first was chiefly the ordinary treatment for acute nephritis. For a time either strophanthus or digitalis was given, with or without diuretin, or else diuretin by itself. For nearly all the time from the end of April to the end of December, 1912, he was given a tablespoonful of liquor ferri et ammonii acetatis three times daily after meals. It is not certain that a "salt-poor" diet did much good in this case. For some days when an ordinary amount of common salt was allowed (March, 1912) the patient passed less urine, with a higher percentage of albumin, than when he was having "salt-poor" diet. Very little special antisyphilitic treatment was attempted. A mixture containing perchloride of mercury and iodide of potassium was soon discontinued on account of diarrhœa. Two small intravenous injections of the original salvarsan (0·1 and 0·2 grm. respectively) were given in January, 1912. The existence of a really syphilitic parenchymatous nephritis, occurring in the primary and secondary stages of the affection, had been much disputed; but recent observations, especially on the continent, have made it almost certain that genuine cases of the kind did occur. 2. A case of Intermittent Claudication of Lower Extremities from Quiescent Non-syphilitic Arteritis Obliterans in a Russian Jew, aged 44. From the age of about 12 he had been engaged in the cigarette trade. The case was shown before the Clinical Section on Jan. 14th, 1910, and it was because of the relatively favourable course of the affection, the long quiescence in a relatively early stage of the disease, and because of possible difficulty in the diagnosis of such cases, that the patient was again brought forward. 3. A case of Thoracic Aneurysm in a Woman.

Mr. E. C. HUGHES showed a case of Paralysis of the Serratus Magnus. The man, aged 33, was assaulted by five men in December, 1912. He remembered being thrown against a gate and striking his right shoulder. The following day his shoulder was stiff, and the next day began to ache. He was unable to perform any overhead actions. When standing with his arms by his side the inferior angle of the right scapula was somewhat prominent. This prominence increased, and the inferior angle approached the mid-line as the deltoid was thrown into action. The arm could be raised almost to the level of the shoulder. When the arm was passively extended above the shoulder the vertebral border of the scapula overhung the spines of the vertebræ.

Dr. W. HALE WHITE showed a specimen and drawing taken from a case of Secondary Hæmorrhages in the Retina in Secondary Anæmia. He said that retinal hæmorrhages had been observed in patients suffering from profound secondary anæmia, yet they were probably very rare, although much oftener seen in those suffering from pernicious anæmia. As he had been able to obtain a histological section of the retina of a patient suffering from profound secondary anæmia, he thought the case perhaps worthy of record. The patient, a woman aged 43, was admitted into Guy's Hospital on May 11th, 1912, for extreme weakness. She was very wasted, and of a grey anæmic tint, so that she looked exactly like a painting of a corpse. A tumour about the size of a small hen's egg could be felt in the region of the cæcum. Red cells, 2,200,000; white cells 17,800; hæmoglobin, 18 per cent. A second count, two days later, showed red cells, 2,498,000; white cells, 14,000; hæmoglobin, 17 per cent. On both occasions the increase of the white cells was due to an excess of lymphocytes. A diagnosis of malignant disease of the cæcum was made. There were no other points of special interest except the condition of the retina, in which several minute hæmorrhages could be seen; they were quite small, of various shapes and sizes, but mostly little round dots; one or two were flame-shaped. They could be seen in both eyes, but they were more numerous in the right eye than the left. After death the tumour felt during life was found to be a cancer of the cæcum. There were no secondary deposits anywhere. Several sections of the retina were cut, and the one which was shown, and of which a drawing was appended, showed several minute subhyaloid hæmorrhages and some œdema of the retina. None of the sections happened to show any hæmorrhages other than subhyaloid, but during life a few flame-shaped hæmorrhages were seen.

PATHOLOGICAL SECTION.

New Method for Differentiation of Some of the Streptococci.—Ovarian Cystoma.—Exhibition of Specimen.

A MEETING of this section was held on Feb. 18th, Dr. R. T. HEWLETT, the President, being in the chair.

Dr. H. WARREN CROWE read a paper on a New Method for the Differentiation of Some of the Streptococci. He said that streptococci could be differentiated by observation of their growth on neutral red egg medium. The classification of Andrewes and Gordon was found to form a good working basis, but finer subdivisions could be introduced with advantage. The paper was illustrated by autochrome plates showing the colour and shapes of the colonies. It was hoped that the contribution would be published in full at a later date.

Dr. ALFRED A. LENDON (Adelaide) communicated a paper on Ovarian Cystoma which was followed by metastasis in the spleen.

Dr. ARTHUR HALL showed a specimen of a Liver with extreme Dilatation of the Intrahepatic Bile-ducts. The specimen was taken from a girl aged 15 years, who had had four attacks of acute abdominal pain followed by jaundice since she was 7 years old. In the intervals between attacks she had been free from jaundice. Each attack lasted five or six weeks. The last one began in November, 1910, and the jaundice did not disappear. She was admitted to the Sheffield Royal Hospital in February, 1911, with jaundice and enlarged liver, and died in April, 1911, with toxæmic symptoms and hæmorrhages. At the necropsy a careful examination failed to detect any gall-stones. The hepatic, cystic, and common bile-ducts were not enlarged and the papilla of Vater was normal. On section the liver showed a firm consistence, great dilatation of the bile-passages, and distinct interstitial cirrhotic changes. On further investigation it was found that the hepatic duct could not be seen anywhere in the portal fissure. The cystic duct left the gall-bladder in the usual position, and then joined a mass of fibrous tissue in the situation that the hepatic duct should be; it was patent and its distal end had been cut in removing the liver. This, unfortunately, prevented further investigation of the common bile duct, and there was only the statement in the post-mortem register that this was not dilated nor did it contain a stone. A microscopic section through the connective tissue at the portal fissure showed the remains of a small and tortuous hepatic duct surrounded by much dense fibrous tissue—extreme catarrhal proliferation of the epithelium so as to largely occlude the lumen. On further examination of the liver a small opening of the hepatic duct was found, leaving a greatly distended interalveolar bile-duct and patent only for about a quarter of an inch, then ending in this mass of fibrous tissue. Within half an inch of this opening a second tube larger in diameter was found leading also from the dilated interalveolar bile-ducts and opening direct into the posterior end of the gall-bladder by a wide mouth protected by a fold of the mucosa. It was very short and ran obliquely in the wall of the gall-bladder, its mouth in that sac being situated above and a little to the left of the fold whence the cystic duct started. It was suggested that the presence of this direct hepato-cystic duct, which occurs normally in certain animals and is very rarely found in man (Quain and Symington), might explain some of the difficulties presented by this case. Clinically it was a typical case of recurrent biliary obstruction due to calculi; against this was the age of the patient, the absence of calculi at the necropsy, the evidence of obliterative cholangitis in the hepatic

duct above the route of a gall-stone, and the large size of the gall-bladder. On the other hand, the recurrent attacks might have been due to repeated attacks of cholangitis from another cause than gall-stones. If so, it was difficult to understand why there should have been complete recovery between the attacks, seeing the condition of the hepatic duct at the necropsy and the extreme dilatation of the intrahepatic bile-ducts without any evidence of a catarrhal condition in them, for their epithelium was absolutely intact. Such dilatation suggested intermittent obstruction such as is seen in hydronephrosis. If it was supposed that this hepato-cystic duct acted as a kind of by-pass along which the bile had been able to flow after the hepatic duct became occluded, then the filling of the gall-bladder and the absence of jaundice became explicable. Possibly the recurrent attacks of jaundice were due to temporary compression of the hepato-cystic duct by distension of the overlying intrahepatic bile-ducts. This was not unreasonable to suppose, for the hepato-cystic duct ran obliquely in the wall of the gall-bladder and lay immediately below these distended ducts. Possibly this was the explanation of the terminal attack when the increasing dilatation of the ducts kept up a constant obstruction. In this respect it was worth noting that during the patient's last illness the jaundice varied somewhat in depth.

SECTION OF LARYNGOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 7th, Mr. T. MARK HOVELL, Vice-President, being in the chair.

Mr. C. W. M. HOPE exhibited two cases of malignant disease treated by injections of seleniol, an electrolytic colloid of selenium. 1. A male, aged 25, with Mixed-cell Sarcoma of the Tonsil and Deep Glands, which were removed at separate operations. In spite of the infiltrating character of the secondary growth seleniol had given local and general improvement. 2. A male, aged 53, with extensive Fungating Growth of the Larynx causing obstruction, and a secondary growth, was treated by the injection of 3 c.c. of seleniol three times a week into the tissues close to the thyroid cartilage. General improvement followed, the fungating growth gave place to a clean ulcer, and the dyspnœa was relieved.—Mr. P. R. W. DE SANTI, in discussing Case 1, doubted the efficacy of seleniol, but considered that operation offered the only hope. He would have advised clearing out the glands of the neck at the first operation or shortly after. In eight similar cases of his own recurrence had followed in from three to six months.—Mr. H. BETHAM ROBINSON pointed out that lymph sarcomata, and some other sarcomata of the tonsil, did well after operation, but the class of growth with much infiltration and little definition was hopeless.—Dr. ADOLPH BRONNER asked if antimeristine had been used by any member.—Mr. W. DOUGLAS HARMER had employed antimeristine in a case of extrinsic carcinoma of the larynx with material obtained by Dr. Schmidt in the method prescribed. After each of the ten doses the temperature was raised, the tumour increased, and ultimately fungated.

Dr. W. H. KELSON showed a case of Pedunculated Tumour attached to the inferior turbinal of a man aged 72, which was considered by Dr. L. W. HEMINGTON PEGLER to be an instance of mucous hypertrophy.

Mr. T. B. LAYTON exhibited a case of Syphilitic Stenosis of the Larynx with calcification of the fascia of the neck—previously shown by Mr. Charters J. Symonds and Mr. F. J. Steward in 1899. The palate was extensively scarred, and evidence of interstitial keratitis and choroiditis had appeared in the interval. There was some dyspnœa. The Wassermann reaction was positive.—Mr. BETHAM ROBINSON had proposed tracheotomy previously; the extreme hardness round the hyoid bone was much the same as previously, but the larynx was freer.—Dr. WILLIAM HILL, as on the previous occasion, doubted the propriety of the word calcification; he considered keloidal as more suitable.—Mr. HAROLD S. BARWELL indicated that an X ray examination would clear up this point.—Dr. H. J. DAVIS compared the hardness of Dupuytren's cicatricial contraction.

Mr. J. F. O'MALLEY exhibited a case of Webbing of the Vocal Cords in the anterior commissure, due to a shot wound, in a boy aged 11. The pellets of an "Eley 14" cartridge had ricochetted from a wall. The X ray plate showed four pellets on the right side and one on the left. The damage had been done by the one shot. Posterior to the webbing the cords moved well; the voice was hoarse.—Mr. BARWELL recommended that nothing should be done as the breathing space was sufficient.—Mr. E. B. WAGGETT advised laryngotomy.—A case of webbed cords of Dr. WILLIAM HILL regained her voice after operation.—Dr. H. W. FITZGERALD POWELL suggested waiting till the boy's voice changed.—Dr. H. J. DAVIS would prefer laryngoscopy treatment and subsequent dilation; he feared the voice might become worse after an operation.—Dr. W. A. MILLIGAN preferred immediate operation, for two or three years' postponement would result in atrophy of the muscles.—Dr. H. LAMBERT LACK considered that operation on the larynx of the child usually ended in failure. Operation might lead to stricture as well as loss of voice. He would defer operation till the boy had grown up.—Mr. HOVELL was in favour of postponing interference.

Dr. J. DONELAN showed a case of Adhesion of the Uvula to the Posterior Pharyngeal Wall, which gave rise to some discussion.—Dr. DAN MCKENZIE had seen a good result after Dr. Dundas Grant had removed part of the bony palate and attached stitches passed through the soft palate to the incisor teeth; he had also experience of the method of passing rubber tubes through the nares and out through the mouth, when the ends were tied together.—Mr. DE SANTI related how Mr. W. G. Spencer detached the adhesion with scissors and raspatory. The soft parts were then rolled together and transfixed with a silver wire suture which was passed through the muco-periosteum of the hard palate. Recontraction was very apt to follow.—Mr. BETHAM ROBINSON had passed a lead plate round the separated palate. Silks passed through the plate were led out through the nostrils and mouth and tied together; the result was good.—Dr. MILLIGAN did not consider any method gave really good results.—Dr. POWELL recommended the rubber tube method; the tube should be cleaned and replaced for a month.—Mr. HOVELL had stitched a prepuce to the raw surface, and the case, seen six years later, had a good voice and excellent nasal breathing.

Dr. DONELAN exhibited a new Tonsillotome which could be used as a tonsillectome.—Dr. P. WATSON-WILLIAMS demonstrated an instrument in which the power was applied by the grip.—Dr. H. J. DAVIS brought Sluder's own tonsil guillotines, and showed how Sluder employed them.—Dr. HILL referred to the improvements Mr. O'Malley had made in Ballinger's instrument. Personally he was impressed with the effectiveness of the reinforced Mackenzie.—Dr. MCKENZIE had seen severe cicatrices after the use of the blunt tonsillectome. He preferred a sharp Mackenzie guillotine.—Dr. MILLIGAN thought the Sluder operation too forcible. He had seen the mucous membrane dissected off and the snare applied with great skill and finish.—Mr. WAGGETT also approved of the snare.—Dr. DUNDAS GRANT mentioned that a rectangular knife with a blunt point was useful in dissecting out the upper pole of the tonsil. This pole was readily enucleated by the guillotine.—Dr. KELSON considered many tonsils were easily detachable. The present requirement was a suitable method of dealing with the more difficult cases.—Mr. HOVELL pinned his faith to the Mackenzie guillotine.

With reference to Dr. H. J. Davis's case of cyst of the upper jaw, Mr. BETHAM ROBINSON had found elasticity on pressing the palate, and from the irregularity of the teeth deduced a dentigerous cyst. The antrum was probably small and unaffected.—Dr. H. J. DAVIS reported that this side of the face was dark on transillumination; the cyst had increased in size. A similar case had developed osteomyelitis after an out-patient operation.

Mr. T. JEFFERSON FAULDER exhibited a man, aged 24, with a Bony Enlargement on the left side of the face for three years; epiphora had been present during that time.—Mr. BETHAM ROBINSON considered the condition one of chronic osteitis of the character of leontiasis ossia; he advised iodide of potassium.—Dr. DONELAN regarded the condition as inflammatory following rhinitis; he recommended operation.—Mr. DE SANTI agreed with Mr. Betham Robinson's view, and was against operation.—Dr. PEGLER said the bilateral character pointed to a mild form of leontiasis.—Dr. MCKENZIE suggested the opening of the nasal duct into the nose above the inferior turbinal; he would show a case in which this had been done.

Dr. E. A. PETERS showed a case of Chronic Pemphigus, which appeared in a man, aged 49, following a small operation on polypi, commenced with small vesicles on the pharynx and palate, and eventually exhibited large vesicles on the

face, wrists, and lips. A bacteriological examination showed a few contaminating staphylococci. Arsenic, rest, and small doses of opium were acting well.—Dr. R E. SCHOLEFIELD related a case with similar symptoms where iodide of potassium and antipyrin had been taken previously.—Dr. H. J. DAVIS had found orthoform of great service.

Mr. DOUGLAS HARMER exhibited specimens illustrating a case of Suppuration of the Antrum due to Aspergillus Fumigatus. The patient, a lady, had suffered for years with hay fever and caught a severe cold when motoring. A persistent one-sided discharge followed with a "wet blotting paper" cast on the pharyngeal wall. The right antrum was dull and the right nasal mucous membrane extremely swollen. The antrum was opened intranasally and irrigated twice a day, when membrane and gritty fragments came away with difficulty. Various applications were made, but finally sodium iodide internally and local applications of five-volume hydrogen peroxide were effective. The antrum became suddenly clear. Only three cases were mentioned in literature. The fungus was common in chronic lung cavities and the ear.—Dr. H. J. DAVIS mentioned a case where the antrum was filled with polypi and small yellow bodies which exhibited a mycelium.—Dr. BRONNER had found the fungus in cases which resembled chronic eczema of the external auditory meatus.

Mr. DOUGLAS HARMER also exhibited two small Crustaceans, Artemia Salina, which had been recovered from the nose, where they caused a sensation of movement and intense irritation. The patient had been using a saline lotion prepared from patent sea salt.—Dr. S. F. HARMER, reported that artemia salina lives in basins of concentrated sea water. Experimentally it had been found that the eggs present in sea salt would develop under favourable conditions. The crustacean had possibly developed in an old solution which had been left unused.

Mr. BARWELL exhibited a boy, aged 13, with Extensive Ulceration of Pharynx, Larynx, and Nasopharynx; Wassermann's reaction was positive, and so determined the nature of the ulceration.

Dr. H. J. DAVIS showed: (1) A Case of Rodent Ulcer Opening into the Nose; (2) a Suppurating Dental Cyst; and (3) Lupus of the Tongue, Face, Anterior Nares, and Palate.—Dr. PETERS remarked on the three clinical forms of lupus present as determined by the character of the local tissue—viz.: (*a*) hypertrophic growth on the moist palate; (*b*) dry or atrophic in the dry anterior nares; and (*c*) warty lupus on the friction surface of the tongue.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Red Degeneration of Uterine Fibromyomata.—The Cause of Internal Rotation of the Fœtal Head.

A MEETING of this section was held on Feb. 6th, Dr. AMAND J. M. ROUTH, the President, being in the chair.

Professor J. LORRAIN SMITH (Edinburgh) and Dr. W. FLETCHER SHAW (Manchester) communicated a paper on Red Degeneration of Uterine Fibromyomata. The authors based their conclusions upon the examination of 24 specimens, all characterised by their red colour; in other respects there were differences, and they therefore divided them into two groups, one in which thrombosis was the principal change (thrombotic group), and another in which there was no thrombosis, but a marked increase in blood vessels so numerous as to warrant this non-thrombotic group being regarded as angiomatous degeneration. The thrombotic group contained 15 out of 24 specimens described; they were all associated with definite clinical symptoms, they were coloured a deep red, and showed no free blood on their cut surface. In a few specimens all the vessels appeared to be filled with thrombi; in the majority only a portion of the vessels were thrombosed. Most of the specimens showed the red colouration throughout; in some the colouration was partial only, and in a few it was limited to the neighbourhood of the thrombosed vessels. The clinical symptoms met with included abdominal pain and tenderness of the tumour, rapid increase in size, fever, and rapid pulse. Micro-organisms were only found in a few cases, and in all of them clinical symptoms of some severity were present. All the tumours were found to contain fat in the tissues, and, following Leith Murray, the authors believed the red colouration to be due to the hæmolytic action of lipoid bodies. Of the 15 specimens in this group six were clinically associated with pregnancy or the puerperium. The non-thrombotic group (angiomatous degeneration) contained nine specimens. These tumours were of a bright red colour and showed free blood on their cut surface. All showed the presence of large numbers of thin-walled vessels of microscopic size filled with blood, the red colour being due to the presence of these vessels. In only one specimen was much fat found, and this was of a dark red colour, as in the thrombotic group. None of the patients showed definite clinical symptoms other than hæmorrhage and pressure.

Dr. JAMES YOUNG (Edinburgh) read a paper on the Cause of Internal Rotation of the Fœtal Head, illustrated by models and by an epidiascope demonstration. The author formulated the view that a firm cylindrical body, closely fitting a curved cylindrical canal, when forced along that canal continually changes its position; the lower end, in contact with the posterior wall of the canal, is carried continually forward as the body descends. The application of this view to the descent of the head in occipito-anterior and occipito-posterior positions was discussed and illustrated by the original models constructed by the author.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY

The Rôle of Cystoscopy in the Diagnosis of Urinary Disease.

A MEETING of this society was held at the Royal Devon and Exeter Hospital on Feb. 14th, Mr. B. DYBALL, the Vice-President, being in the chair.

Mr. ROBERT A. WORTHINGTON read a paper on the Rôle of Cystoscopy in the Diagnosis of Urinary Disease, with special reference to tuberculosis. After briefly sketching the history of the cystoscope, he exhibited various patterns, and demonstrated the great superiority of Ringleb's optical system over any other. The possibilities of the catheterising cystoscope were described. The so-called operating cystoscopes were referred to, but Mr. Worthington did not regard them as being of much practical use except in very occasional cases. The dangers of cystoscopy were next discussed. The chief danger, Mr. Worthington considered, was in the production of a reflex renal engorgement in cases of renal inefficiency. Such engorgement might lead to anuria in degenerate kidneys, or in the presence of cystitis to renal suppuration, Such an infection, he considered, was blood-borne. An ascending infection through the ureters in the absence of obstruction and back pressure, he thought, rarely if ever occurred. Mr. Worthington then described a series of cases in which the diagnosis had only been completely arrived at by cystoscopic methods. Among them were three cases of early urinary tuberculosis in which the symptoms had been purely vesical. The kidney primarily involved was determined in each case by ureteric meatoscopy. The condition of the other kidney was determined by ureteric catheterisation and collection of its proper urine. Subsequent operation and the recovery of the patients had confirmed and justified these exact methods of diagnosis. Mr. Worthington exhibited the kidneys of a female patient who died in hospital of urinary tuberculosis shortly after admission. The patient was too ill for any examination beyond that of the urine to be undertaken. Both kidneys were greatly enlarged—one a mass of tubercular abscesses and the other showing the characteristics of parenchymatous nephritis and no tubercle. He emphasised this case as an excellent example of the one-sidedness of urinary tuberculosis even in advanced cases.

Mr. DYBALL said that his own experience coincided with that of Mr. Worthington with regard to the value of tuberculin injections after nephrectomy. He mentioned a case of extensive tubercular disease of the genito-urinary tract where nephrectomy had been performed two years ago. The patient, in an exceedingly low condition, made surprising improvement when tuberculin injections had been instituted. The man had now been at work for 18 months, the only symptoms at the present time being those related to a contracted bladder.

Dr. J. RAGLAN THOMAS had seen one case of undoubted tubercle of the kidney which recovered without operation. The patient, a young girl, had tubercle bacilli in the urine and a palpable kidney. She was treated by open-air and antiseptics, and was now the healthy mother of a family.

Dr. R. V. SOLLY had tested the value of tuberculin in renal tuberculosis, and agreed with Mr. Worthington that little good could be expected without removal of the affected kidney.

Dr. FRANK A. ROPER was personally interested in indigo-carmine experiments. He had had the advantage of meeting Dr. Dixon, of San Francisco, and of seeing him investigate six medical cases for total renal function with phenol sulphonaphthalin. Six milligrammes were injected into the buttock, and as the urine dripped out from a catheter into a basin containing KHO a pink blush was waited for and the exact interval of time from the injection to its appearance noted. Should this interval exceed 11 minutes it was regarded as pathological. In normal persons 60 per cent. of the substance should be excreted in one hour and the whole amount in three hours, whereas in disease enormous variations were recorded. In chronic nephritis 15–20 per cent. only might be excreted during the first hour, and 36 hours might elapse before excretion was completed. The necessity or not for catheterisation in the carrying out of the test depended on the intelligence of the patient.

Dr. J. DELPRATT HARRIS had had several consecutive cases where injections proved to be of the greatest value, but there was much agnosticism still to be met with. He asked Mr. Worthington if secondary ulcerations in the bladder were fed by the renal disease, and did they clear up when the kidney was removed.

Mr. WORTHINGTON, in replying, said that with regard to the case quoted by Dr. Thomas the exception did occur. With regard to the points raised by Dr. Thomas, Mr. Worthington said that cystoscopy should be the last act in urinary investigation. As to the appearances observed, changes at the ureteric orifice go with changes in the corresponding kidney, and changes in the kidney which affect the urine will affect the ureteric orifice. In answer to Dr. Solly, Mr. Worthington said that tubercle bacilli could pass over the mucous membrane of the renal pelvis or bladder provided the surface was sound. Bacilli *plus* toxins irritated the mucous membrane and produced a condition of lowered vitality, and the cystoscope showed hyperæmia. Tubercle bacilli were grafted on. In reply to Dr. Harris, Mr. Worthington said that the majority of investigations showed that the ulcers were secondary to the upper lesions.

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Specimens.—Pathology and Bacteriology of Tuberculosis.

A PATHOLOGICAL meeting of this institution was held on Feb. 13th, MR. R. W. MURRAY being in the chair. The evening was devoted to the consideration of tuberculous disease.

The following specimens were shown and described:—

Mr. G. P. NEWBOLT and Dr. S. W. MCLELLAN: (1) Tuberculous Sac of Hernia; and (2) Tuberculous Mastitis.

Mr. T. R. W. ARMOUR and Dr. MCLELLAN: Alveolar Sarcoma of Face.

Mr. W. THELWALL THOMAS and Dr. A. A. REES: (1) Tuberculous Breast; and (2) Tuberculous Synovitis.

Mr. K. W. MONSARRAT: Tuberculous Adenitis of the Mesentery.

Dr. NATHAN RAW: (1) Healed Tuberculosis of Apex with Thickened Pleura; (2) Tuberculosis of Appendix; (3) Tuberculosis in a Fish; (4) Pure Cultures of Human, Bovine, and Avian Bacilli; (5) Suprarenal Glands and Kidneys showing tuberculous infection; and (6) Uteri and Fallopian Tubes with Acute Tuberculous Disease.

Mr. F. A. G. JEANS and Mr. C. THURSTAN HOLLAND: Large Calcified Tuberculous Gland from Omentum.

Mr. R. STOPFORD TAYLOR and Dr. R. W. MACKENNA: Wax Casts of Tuberculous Affections of the Skin.

Professor ERNEST E. GLYNN: Tuberculosis in a Fish.

Dr. T. BUSHBY showed a Card Specimen.

Dr. W. BLAIR BELL: Tuberculous Salpingitis (two cases).

Dr. F. H. BARENDT, Mr. MONSARRAT, Mr. THURSTAN HOLLAND, and Professor GLYNN discussed the specimens.

Dr. NATHAN RAW read a paper on the Pathology and Bacteriology of Tuberculosis. He discussed the variations in type of the tubercle bacillus and their cultural appearances. The methods of entry of the organism and the manner of extension were next described. Dr. Raw quoted the work of Dr. J. Fraser in support of his own view that bone and joint tuberculous affections in children were due to the bovine bacillus. The effect of vaccination on the cow was mentioned; it had been shown that the animal might have large quantities of the tubercle bacillus in the milk for long afterwards.—Mr. JEANS thought that the virulence of the bacilli varied in different districts.—Dr. J. R. LOGAN discussed the frequency of tuberculosis in children and in people late in life. He thought the disease was frequently mistaken for chronic bronchitis in the old.—Mr. A. ADAIR DIGHTON thought that infection of the tonsils and cervical glands was caused by infection from the sputum.—Professor GLYNN was surprised at Dr. Raw's opinion that acute miliary tuberculosis, tuberculosis of lymph glands (other than mesenteric), of bones and joints, and of the meninges was usually caused by bacilli of bovine type. This opinion was diametrically opposed to the published observations of the Royal Commission and to the still larger number of observations by other investigators collected by Park and Krumweide. Professor Glynn asked Dr. Raw to state the reasons and to detail the experiments which made him advance such an opinion. Dr. Raw placed all cases of pulmonary tuberculosis, with or without secondary enteritis and laryngitis, in a "human ward" for treatment with bovine tuberculin, and all other cases in a "bovine ward" for treatment with human tuberculin. If the figures of the Royal Commission or Park and Krumweide were to be relied upon, by far the larger proportion of Dr. Raw's bovine cases were in the wrong ward.—Dr. J. MURRAY BLIGH asked if Dr. Raw would state if he could distinguish the two kinds of bacilli microscopically.—Dr. G. A. CRACE-CALVERT also spoke.—In his reply Dr. RAW said that he had arrived at his conclusions by the clinical observations. In answer to Dr. Bligh, Dr. Raw stated that he knew of no certain means of distinguishing between the two organisms microscopically.

EDINBURGH OBSTETRICAL SOCIETY.

Uterine Hæmorrhage of Ovarian Origin.—Symmetrical Necrosis of the Cortex of the Kidneys.

A MEETING of this society was held on Feb. 12th, Dr. J. HAIG FERGUSON, the President, being in the chair.

Dr. JAMES YOUNG read a paper on Uterine Hæmorrhage of Ovarian Origin and gave a lantern demonstration of the specimens. Two cases of excessive uterine hæmorrhage were described, in which the pathological findings suggested an ovarian cause. The first patient, who was aged 40, had had seven children, the last being 6 years old. Menstruation had always been copious but regular till three years before treatment, when it began to occur every 14 days and frequently lasted 10 days. During these three years there had always been more or less constant pain in both ovarian regions, worse before and during the periods. She was curetted and glandular endometritis found. After this the hæmorrhage became, if anything, worse, and three months afterwards a supravaginal hysterectomy was carried out. The right ovary, which was enlarged, was removed. The endometrium exhibited again a marked increase in the glandular tissue. The ovary contained a corpus luteum with a large blood space. The luteal cells were ploughed up by hæmorrhage, and the surrounding ovarian stroma was the seat of marked œdema and hæmorrhage. The second patient, who was 28 years old, had borne one child three years before. Menstruation was always regular till May 24th, when it lasted till June 13th. There was severe anæmia and a swelling was found in the right side of the pelvis. This was removed by laparotomy and was found to be an ovary containing a corpus luteum with a large blood cavity. Microscopically, it showed appearances similar to the first case. Dr. Young concluded that in these two cases the bleeding was certainly not due to a uterine cause, and, as it corresponded to a prolonged menstruation and was associated with excessive bleeding in the region where the menstruation-producing substance was elaborated, that the hæmorrhage must be due to an excessive ovarian activity. In

cases of menorrhagia and metrorrhagia of obscure origin these facts should always be considered. The glandular endometritis corresponded to the glandular hyperplasia present in the menstruating mucosa, though here it was excessively developed.—Dr. D. BERRY HART remarked that Lawson Tait held that the ovary had an influence in producing hæmorrhage, especially the cirrhotic ovary. There were difficulties in accepting Dr. Young's idea that the luteal secretion was one that provoked hæmorrhage from the uterus. If the corpus luteum could induce hæmorrhage, might it not be a cause of abortion?—Dr. A. H. F. BARBOUR and Professor J. LORRAIN SMITH also discussed the paper, and Dr. YOUNG replied.

Professor ROBERT JARDINE (Glasgow) read a paper on Three Cases of Symmetrical Necrosis of the Cortex of the Kidneys associated with Puerperal Eclampsia and the Suppression of Urine. In 1911 he had published notes of two cases, and since then he had met other four cases; one was a case in the country where he could not obtain the kidneys. Of the three others one was under the care of Professor Murdoch Cameron. The first patient, aged 34, was in her ninth pregnancy, and in the seventh month, and was admitted to hospital with concealed accidental hæmorrhage. No urine was found in the bladder. She was delivered three hours later. Death occurred four days afterwards. There was absolute suppression of urine for 4½ days. No fits occurred. The second patient was 38 years old and eight months advanced in her third pregnancy. Twins were present. The urine was loaded with albumin. Labour ended spontaneously the day after admission. She had one fit, and total suppression of urine for 2½ days. The third patient was 23 years old and 4½ months advanced in her first pregnancy. She was admitted in a comatose condition after the occurrence of several fits. The urine was solid on boiling. Suppression lasted from 1½ to 2 days. Eclampsia at such an early stage of pregnancy was extremely rare. In the two cases previously recorded one had complete suppression for 5½ days, the other during the last seven days only passed ½ to 3 oz. In this latter case the patient's hands and face showed a condition not unlike Raynaud's disease. In no other case had this condition been observed. Professor Teacher looked upon spasm of the vessels as probably the determining cause of the thrombosis. In the last three cases now recorded the suppression lasted 4½, 2½, and 1½ days, so it gave a series, and the pathological report studied these stages. In the case reported by Dr. W. P. Herringham and Dr. W. S. A. Griffith the patient had no fits, and had complete suppression for six days before death; previously only a trace of albumin was found in the urine and some tube casts. In Rose Bradford and Lawrence's case the suppression lasted seven days, and there were no fits. The kidneys in both these cases showed an identical condition with the cases now recorded. These observers drew attention to the fact that no uræmic signs or symptoms were manifest. This was true of Professor Jardine's previous two cases. Of the last three cases, one had attacks of dyspnœa; another had persistent vomiting; and the third had vomiting and hiccough. So far as could be seen, these cases were hopeless, and no treatment could be expected to renew the cortex of the kidney when it had been destroyed. Unfortunately, both kidneys seemed always to be affected. Decapsulation on one kidney was tried in his first case, but, of course, with no result. It was to the pathologist they must look for light upon this obscure subject.—Dr. M. KENNEDY (Glasgow) read notes on the pathology of the three cases. Case 1 had 4½ days' suppression of urine, Case 2 had 2½ days' suppression, and Case 3 had 1½ days' suppression. Dr. Kennedy said: The kidneys, which appear to have been healthy organs, are in each case the seat of symmetrical necrosis of the cortex. The necrosis is more or less limited to the outer two-thirds of the cortex, varying in degree with the duration of the suppression of urine. In the two older cases the necrosis is more or less uniform, and separated from the living inner third of the cortex by a hæmorrhagic zone, and is more advanced in the older case. There is extensive thrombosis of the cortical blood-vessels which does not extend beyond the margin of the necrotic area and does not involve the vascular arches, and which is more widespread in the oldest case. In the earliest case the necrosis is of a very patchy character, and in the neighbourhood of the patches there is intense congestion. Thrombosis of the cortical blood-vessels in this case is conspicuous by its extreme infrequency; in some of the necrotic areas thrombosed capillaries are found, but only rarely are any of the minutest arterioles thrombosed. The question now arises, How are we going to account for these changes? Is the thrombosis primary and the cell degeneration secondary? or is the cell degeneration primary and the thrombosis consequent on the autolytic products of the cells, or are both dependent on the same agency? The answering of these questions is by no means a simple matter, and it might almost lead to a discussion on the etiology of eclampsia in general. Two similar cases of this condition with suppression of urine 5½ days and 8 days respectively have previously been reported by Professor Jardine and Professor Teacher. In one there were symptoms of Raynaud's disease, and Professor Teacher holds the opinion that the symmetrical necrosis of the renal cortex is dependent upon spasm of the smaller renal arteries with consequent thrombosis. He bases this opinion chiefly on (1) the association of Raynaud's phenomena in the one case; (2) the symmetrical distribution of the necrosis; and (3) the distribution of the thrombosis in the renal arteries—viz., in the cortical branches from a point frequently just beyond their origin from the arterial arches. As regards the first point, we have now seen six cases, and it is only in the one that there was any suggestion of Raynaud's condition. This in itself contraindicates any association of the two conditions. As regards the symmetrical distribution of the necrosis, we know that when the cause is general—e.g., nephritis—the kidneys usually suffer together in their morbid changes. Thirdly, as regards the distribution of the thrombosis, this is answered by reference to the third of our present cases. In the two older of our present cases the extent of the thrombosis approaches somewhat that seen in the two cases previously published, but in our third case, where the condition is very early, the thrombosis is chiefly in the capillaries and the smallest arterioles in the immediate vicinity of the necrotic patches. In every case the thrombosis is always found in the neighbourhood of the necrotic tissue. I do not think it can be denied that the cases are all of the same nature only showing different stages of development; and it seems to me that the thrombosis in the latter cases is but an extension of the thrombosis in the capillaries and smallest arterioles. If then the thrombosis starts in the finest branches, what starts it? An almost constant feature of fatal cases of eclampsia is focal necrosis in various organs of the body, but chiefly in the liver, and these are frequently associated with capillary thrombosis. In our three cases, at present under discussion, to the naked eye there appeared to be focal necrosis in the livers, and this was confirmed microscopically in two. Capillary thrombosis, however, was not apparent, and, in fact, in one—the earliest case—there were great dilatation and congestion of capillaries in the foci. I am inclined to the view that the cause of the necrosis in the kidneys is the same as that which causes necrosis in the liver, and that the thrombosis in the smaller cortical renal arteries is secondary to the necrosis of the renal cells. The foci of necrosis in the liver are portal in distribution, and the vascular supply here is not in the same category as that to the kidneys; therefore, since we can have necrosis in the liver without vascular spasm, I do not think we need bring it into account to explain the renal necrosis. What, then, initiates the necrosis? I am afraid we must fall back upon the explanation that it is the deleterious influences on the cells of the eclamptic toxin, whatever it may really be.—Professor LORRAIN SMITH referred to the statement that necrosis of the renal cells was caused by the toxin. How could the toxin of eclampsia seek out and attack the cells, two-thirds of the kidney being attacked and the rest escape? From the distribution of the thrombi in the capillaries he would rather regard the toxin as being contained in the blood and not acting directly on the epithelium.—Dr. BERRY HART noted that in these cases there had not been many fits and not bad fits. The time that uræmic patients could live after suppression was interesting. A patient lived for 11 days after removal of a horse-shoe kidney by mistake in America. There was the same action of the toxin on the tissues of the liver as on the kidney. Examination of the blood might throw more light on the subject.—Dr. BARBOUR mentioned that it was extremely interesting to find that the toxin selected certain organs, and only certain portions of these organs. These specimens only covered a small proportion of the cases of eclampsia; in some cases of eclampsia there were no lesions evident at all.—Dr. H. OLIPHANT NICHOLSON

referred to the fact that in cases where the secretion of urine was stopped there was a very high blood pressure—a condition which ordinarily increased the secretion of urine. The toxin seemed to be a very powerful vaso-constrictor, acting on the smallest vessels first and afterwards the large vessels. Lauder Brunton had described the action of digitalis as a vaso-constrictor which could be increased to such an extent as to occlude the artery, as if a ligature had been put on the renal artery. If treatment was successful the blood flowed through the vessels again. The anuria was due to an intense constriction of the blood vessels. The necrosis was due to the cutting off of the blood-supply. The same results as were found in the liver in the cases described were produced by poisoning with adrenalin.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 29th, Dr. J. Lindsay, the President, being in the chair.—Dr. G. Balfour Marshall showed the following specimens: 1. Intramural Uterine Fibroid. 2. Uterus with Fibroids; the tumours had burrowed into both broad ligaments. 3. Fibroid from Left Broad Ligament. 4. Ovarian Cystoma. 5. Fibroid with Double Salpingo-oöphoritis. 6. Bilateral Salpingo-oöphoritis. 7. Parovarian Cyst with Torsion of Pedicle.—Professor J. M. Munro Kerr showed: 1. Specimen of Extra-uterine Pregnancy, exhibiting process of tubal abortion. 2. Bilateral Malignant Ovarian Tumour. 3. Adeno-carcinoma of Uterus.—Dr. A. W. Russell showed: 1. Multilocular Ovarian Cyst of Left Ovary; the right ovary had been removed for a similar condition eight months previously. 2. Œdematous Fibroma of Ovary; the tumour had been present two years without pain.—Dr. W. D. Macfarlane showed: 1. Melanotic Carcinoma of Vulva; excision of growth and glands had been carried out. 2. Double Ovarian Dermoids (Dr. J. Ritchie's case). 3. Multiple Fibroids in Pregnant Uterus.—Dr. D. Shannon showed: 1. Ovarian Cyst. 2. Cancer of Right Ovary with Peritonitis.—Dr. Louise McIlroy showed a Bilobed Placenta with velamentous attachment of cord and area of infarction.—Dr. Marshall recorded a case of Maldevelopment showing a dystopic (pelvic) left kidney, absence of vagina, presence of Müller's ducts, the right showing a cornuate small uterus; both ovaries were present, and a right Fallopian tube. A drawing of the condition was exhibited. The history was that menstrual molimina had not been present, and the patient was sent on account of amenorrhœa and a swelling in the pelvis. Permission was given for exploratory operation. It was seen that the tumour lay in the left side of the pelvis, the left iliac artery passed above the upper pole of the kidney and the pelvic colon covered it; the rectum lay close to the inner border. Large renal vessels were seen passing under the meso-sigmoid; the kidney was fixed, immoveable, and covered by vascular peritoneum; the ureter was short. The ovaries lay along the edge of the psoas muscle half an inch from the deep abdominal ring. The inguino-genital ligament was seen passing from the anterior pole of the left ovary into the inguinal canal. A concentric band ran across the pelvis evidently representing Müller's ducts, and on the right side a thickened spindle-shaped swelling 1½ inches long was present—a rudimentary uterine horn. The right Fallopian tube ended in a fimbriated extremity projecting full into the peritoneal cavity, and a well-marked fimbria ovarica was present.—Dr. Marshall then read a paper on Artificial Vagina—a review of the various operative procedures for correcting atresia vaginæ. He pointed out that the condition was rare, but of interest in view of the recent advances made in the operative technique with the object of producing an artificial vagina that would not contract. Two distinct types were recognised: (1) where the uterus was present, including both the so-called congenital cases, which according to Nagel and Beit were not developmental, but due to inflammatory processes with following adhesion of the vaginal walls in early infancy, and cases due to traumatism at childbirth; (2) true congenital atresia without the uterus being present. Dr. Marshall gave a general description of the historical views and operations dating from Haen in 1761 to the present time. He quoted cases to show that pregnancy might follow the formation of an artificial vagina, and gave the opinions of different operators regarding the justification or otherwise of performing operations merely to give a coitional vagina when the uterus was absent. He described the operations performed at different times for the condition. 1. Simple splitting of the recto-vesical septum, which was so fatal that leading French surgeons in the last century advised against its performance. 2. Plastic operations dating from Heppner in 1872: (*a*) transplanting of skin flaps or epithelial growths; (*b*) transplantation of vaginal flaps taken from cases operated on for prolapse; (*c*) implantation of pieces of peritoneum; and (*d*) implanting bowel mucosa. 3. Suture of uterine cervix to vulvar orifice after opening septum (Martin). 4. Combined abdomino-vaginal operation (Pfannenstiel); cervix freed by laparotomy after partly opening the recto-vesical septum from below, the abdomen being then closed and the cervix pulled down and attached to vulvar orifice or mucosa of vaginal rudiment. 5. Formation of artificial vagina by making use of a segment of resected bowel. Sneguireff first recorded in 1904 three cases operated on by his method of transplanting the rectum, but this operation was objectionable because a sacral anus was left. The operation was improved by Popoff and Schubert, the latest phase being the procedure of Baldwin of America, who transplants a segment of ileum. So far 12 cases by Baldwin's method had been done and four by Mori's method, which differed from Baldwin's in that a single stretch of bowel was implanted instead of a double loop.—Professor Munro Kerr discussed Dr. Marshall's paper and mentioned a case of atresia where he had operated by Baldwin's method.—Dr. Alexander MacLennan read a paper on a method of Radical Removal of the Cancerous Uterus. He said: The main features of the operation are as follows. Preliminary curettage three days before the main operation, which is carried out abdominally. The bifurcation of the iliac artery is identified, the peritoneum caught up in this region and incised. The ovarian and anterior division of the internal iliac arteries are tied. The ureter is followed into the pelvis, and if it pass into diseased tissue it is divided and implanted into the bladder. The peritoneum is divided parallel with the ureter and across the front of the uterus to the opposite side. The broad ligaments are separated and the lateral aspect of pelvis cleared. The peritoneum behind the broad ligaments is stripped from Douglas's pouch. The pelvic contents are detached by a digging process and pressed downward. The uterus is separated from the vagina and bladder and the whole mass packed into the pelvis. The loose peritoneum and sigmoid are stitched so as to shut off the peritoneal cavity. The patient is then placed in the lithotomy position and the parts removed from below. The cavity is packed with gauze, which is afterwards gradually removed.—The paper was discussed by Dr. Marshall and Mr. Donald Duff.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Feb. 14th, Professor E. W. Hope, the President, being in the chair.—A paper was read by Dr. J. Wright Mason on Duties Imposed on Port Sanitary Authorities, in which he said that the abandonment of quarantine and its restrictions had probably been one of the most powerful of the many stimulants which the cause of sanitation had ever received. Port sanitary authorities now had resort to less stringent measures. Ships arriving from infected ports or suspected ports were now only detained at the boarding stations for the purpose of inspection, and then only for a limited period. Just as in the case of urban districts disease followed the course of canal traffic, and the tramp transmitted infection by his migratory habits, so, with a port sanitary authority, the many and varied routes of ocean traffic were also sources of infection. The medical inspection and examination of the passengers and crew of all vessels arriving from infected or suspected ports was of national importance, for only by such means could the importation of infectious and other diseases be prevented. Much good had recently resulted from the confidential communications issued periodically by the Local Government Board giving particulars as to the existence of infectious diseases at various foreign ports. These lists had proved invaluable to medical officers of health. The possession by a port sanitary authority of a thoroughly equipped disinfecting station was a valuable asset. In Hull a ship's crew was removed to undergo bathing and disinfection and the vessel, including the crew's quarters, was disinfected. The clothing and effects of all deceased seamen should be thoroughly disinfected before being handed over to the Board of Trade. After referring

to the necessary precaution of pumping out all bilge water and water ballast before an infected or suspected vessel entered the dock, Dr. Mason said that as it had been demonstrated beyond doubt that rats were the common media for the propagation of plague efforts should be concentrated on their suppression or limitation of their numbers, and any unusual mortality amongst them should be notified to the medical officer of health in order that inquiries might be made into the circumstances and bacteriological examinations conducted. The Unsound Food and the Foreign Meat Regulations, 1908, had cast upon port sanitary authorities the duty of examining all food brought into port, although it might be intended immediately to send it inland, and many port sanitary authorities considered that the cost of carrying out these regulations and other extraordinary expenditure should be paid for out of national and not out of local funds.—The President said that one important result of the vigilance of port sanitary authorities was the immunity from small-pox which the country generally had enjoyed. He considered that international agreements relating to shipping should be more rigidly adhered to, and that if a certain line of policy had been agreed upon the subscribing nations should abide by them. He asserted that at times our ships had been subjected to restrictions which were altogether unwarranted.—Dr. Herbert Williams regretted that the information obtained from British Consuls was not so reliable as that of other nations, and he considered the Government might usefully move in the direction of securing better information from abroad. He maintained that it was absolutely essential to have rats examined bacteriologically in order to decide whether a patient was suffering from plague. All ships arriving from ports infected with plague should be fumigated with some lethal gas. A most recent proposal was to utilise the fumes from the ship's funnels.—Dr. M. K. Robinson considered that riparian sanitary authorities ought to do more in regard to preventive measures than they do at present, so that leakages would not occur so frequently as they do now.—Mr. Herbert Jones spoke with approval of the notices which were sent by port sanitary medical officers of health to medical officers inland giving the names and addresses of contacts coming from vessels. The following up of these contacts was an admirable educational experience.—Mr. J. Tubb-Thomas thought that if a Government grant were given to the smaller port authorities they would exercise greater activity.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 20th, Dr. Stanley Riseley, the President, being in the chair.—Mr. Arthur M. Connell, in a paper on the Importance of Careful Treatment in Injuries and Infections of the Fingers, dealt specially with the infective conditions and their treatment by fomentations, &c. He referred to the great importance of careful incisions in such conditions, these being made in such a way as to avoid infecting healthy tissues. In the treatment of suppurative conditions about the nail he advocated the immediate removal of the nail. Where an interphalangeal joint became infected he advised amputation in preference to excision.—Mr. J. B. Ferguson Wilson showed a specimen of Torsion of the Spermatic Cord. There was great enlargement of the testicle due to extravasation of blood into the epididymis and body. The condition began with a sudden onset five days before removal. There had been no injury, and the testicle was fully descended.—Dr. A. G. Yates showed two cases of Exophthalmic Goitre in men, one of whom had been taking thyroid extract for several months before admission to hospital. The symptoms had progressed and the result appeared to be wholly unsatisfactory. The desirability of operative treatment in these cases was also discussed.—Dr. R. G. Abercrombie showed three forms of Apparatus for treating injuries of the hands. 1. An Apparatus for Exercising the Grasp Muscles, in which the principles of the lever were utilised, so that at the beginning of the act of grasping, when the muscles were weak, the resistance was small; at the middle of the grasp, when the muscles were strongest, the resistance was at its maximum, and at the end of the grasp when the muscles were again weak the resistance was again small. 2. A Steel Wristlet, provided with finger-stalls and straps, designed to overcome loss of flexion of the fingers caused by stiffness. The straps were to be gradually tightened, thus bringing the fingers into the position of flexion. 3. A Grooved Wooden Wedge, intended to obviate the tendency after a disarticulation of the finger at the metacarpo-phalangeal joint of the two adjoining fingers to fall together, thus weakening the hand. The wedge was to be worn at night.—Mr. Graham Simpson showed a Loose Cartilaginous Body removed from the elbow-joint. It was about the size and shape of a bean, and showed no fractured surface.

Reviews and Notices of Books.

Nervöse Angstzustände und ihre Behandlung. Von Dr. WILHELM STEKEL, Wien. Mit einem Vorwort von Professor Dr. SIEGMUND FREUD. Zweite vermehrte und verbesserte Auflage. Berlin and Vienna: Urban and Schwarzenberg. 1912. Pp. 448. Price, paper, 15 marks; bound, 17 marks.

Dr. Stekel is an enthusiastic disciple of the Freudian school, who takes for the motto of his book the saying of Strindberg, "Behind every thought a passion lurks." No one who will take the trouble to read through the long descriptions of clinical cases furnished by Dr. Stekel will doubt that behind every thought of his patients passion does seem to lurk, but whether it is authentic or merely interpretative is another question. The medical profession, it may be presumed, is fairly familiar with the general trend of the teaching of the Freudian school, and it will suffice in this place to say that Dr. Stekel is an apostle of the psycho-analytic method, and weighs every symptom and interprets every sign by the criteria of Freud's technique and by these alone. He is never in doubt as to the significance of any clinical phenomenon, or as to the symbolism of any dream fantasy, among his neurotic patients, for do we not know that "jedes Individuum, das die ihm adäquate Form der Sexuelbefriedigung nicht findet, erkrankt an einer Angstneurose"?

Starting, then, from this basis, Dr. Stekel proceeds to analyse with exceeding minuteness the common symptoms of anxiety neurosis, as it may be called, and he includes in this symptomatology practically every conceivable neurasthenic, psychasthenic, and hysteric symptom, not excepting hyperemesis gravidarum, tics, and bronchial asthma. The apparent ease with which a sexual basis for the origin of one and all of these symptoms, produced by "conflict," "repression," or "projection," is found by the investigator, is not a little striking; but it must be remembered that in Freudian lore, "man kann nicht genug auf die symbolischen Ausdrucksformen der Kranken achten. St. erzählen uns alles." The instances of symbolic interpretation given by Dr. Stekel are numerous, and one or two examples will elucidate his methods. Mucous colitis, in his opinion, occurs with some frequency in anxiety neurosis: "die Diarrhöe ist in solchen Fällen geradezu das Surrogat einer Pollution." The interpretation of dream thoughts and words is equally curious, as also of the answers in word, association tests. Thus, "bookcase," it is interesting to know, "das Symbol für einen sehr potenten Menschen darstellt." To "play the piano" is a "häufiges Symbol für Koitieren." A patient dreamed she was in a bank office, the entrance to which seemed to be high up. This latter point, we are informed, is "eine sexuelle Phantasie von der Bau ihrer Vagina." The words whose symbolic interpretation is the membrum virile are truly legion, if we are to credit Dr. Stekel, but no good purpose can be served by citing these fantastic conjectures. Because a patient is in the habit of reclining on cushions when she wishes to be comfortable, her neurosis partakes of an "anale Charakter," and so on.

In our opinion the book, in spite of the evident ability and earnestness of its author, is vitiated by unjustifiable deductions and hazardous guesses of this sort. After reading it we are unconvinced either of the necessity or of the desirability of resort to the methods vaunted in exuberant language by Dr. Stekel. The cases hailed as "cures" do not always appear either well-substantiated or to have been followed for any length of time. The curious reader who will scan the 24 pages devoted to the case of a public singer suffering from hysterical aphonia, or rather from inability to sing on the public platform, and examine critically Dr. Stekel's methods of treatment in the case, is not likely, we think, to feel that the psycho-analytic method is the only way, and one of "ungeheuere Macht." Many of the cases here quoted are of considerable interest and complexity, but where this complexity is complacently dispelled by such generalisations as "die Kinder sind alle leidenschaftliche Koprophilen," we are unable to follow the author's lead.

A paragraph in Chapter XXXIV. throws an interesting sidelight on the attitude of mind of the writer. In speaking of the treatment of anxiety neurosis, Dr. Stekel refers to Dubois, Dejérine, and others, who do not happen to see eye to eye with him, in the following terms: "He [Dubois] exorcises the neurotic devil with dialectic, ethics, philosophy, and white of egg. Truly these are powerful weapons in the fight against diseased nerves; as useful as the religious, mystic, buddhistic methods which another psychotherapeutist practises, as the training of the will used by Lévy, or as the method of persuasion of Dejérine and Hartenberg. We flatter ourselves that we alone have brought forward evidence to show that correct therapy must go down to repressed ideas," &c. Further comment would be superfluous.

The Surgery of the Stomach: a Handbook of Diagnosis and Treatment. By HERBERT J. PATERSON, M.A., M.B., M.C. Cantab., F.R.C.S. Eng. With plates. London: James Nisbet and Co., Limited. 1913. Pp. 312. Price 12*s.* 6*d.* net.

Mr. Herbert J. Paterson is widely known as a writer on the surgery of the abdomen, possessing original views founded on a very extensive experience in this branch of surgery. Some nine years ago he obtained the Jacksonian prize of the Royal College of Surgeons of England for an essay on the diagnosis and treatment of those affections of the stomach which are amenable to direct surgical interference, and the present work deals with the same subject. These affections are of great importance, for many lives may be saved and much suffering may be relieved by a timely operation. In malignant disease of the stomach the diagnosis is only too often made at so late a stage that the surgeon is unable to extirpate the disease, and has to content himself with the performance of some palliative operation, whereas an earlier diagnosis might have enabled him to add many years to the life of the patient. It is of the utmost importance, therefore, that all the newer diagnostic methods should be employed in the elucidation of the affections of the stomach, so that the real condition should be recognised at the earliest possible moment, and the practitioner should not content himself with the diagnosis of indigestion when a more accurate diagnosis is possible.

Mr. Paterson has described in this volume the methods of treatment which he has found to be of the greatest value in his own practice, and as his experience has been wide his conclusions are of great interest. An informing section is that on gastric analysis, to which the author attaches great importance. For the test meal he employs two slices of dry toast and 15 ounces of weak tea with sugar, but on milk, and in an appendix is given a full account of the tests that may be applied to the contents of the stomach when they have been drawn off. The chief other diagnostic methods are also described. We notice that the author does not think that the gastroscope is of much value in the diagnosis of gastric disease. On the preparation of the patient before operation Mr. Paterson lays great stress. He pays attention to the diet of the patient for several days before the operation, and especially does he see that the teeth are in good order, for he holds that some cases of sepsis after abdominal operations are due to a septic state of the mouth.

The operations on the stomach are described in order, and the account of the operation of gastro-jejunostomy is especially good. Mr. Paterson tells us that usually he performs the ordinary posterior operation, but that he thinks it immaterial which method is adopted; that the posterior operation gives rise to less vomiting at first and has a shorter convalescence, but that the ultimate results are the same. A valuable chapter is that dealing with the after-treatment of gastric operations and of the complications which may arise. In discussing the treatment of perforated gastric ulcer the author expresses his disbelief in the "toilet of the peritoneum"; he holds that flushing the peritoneum simply increases shock and is ineffectual in cleansing the peritoneal cavity; and we agree with him that when the perforation is closed the peritoneum is much more capable of dealing with the extravasated fluid than is the surgeon. He employs drainage in these cases, placing a tube in the pelvis through a stab wound above the pubes. He advises a primary gastro-jejunostomy in cases of perforated ulcer in the belief that it improves the patient's immediate chance of recovery. The reader will recognise in every line of the book the words of one who is writing on a subject which he knows well, and that he is recording the results of an extensive experience.

Cunningham's Manual of Practical Anatomy. By the late D. J. CUNNINGHAM, M.D. Edin. and Dubl., D.Sc., LL.D. St. And. and Glasg., D.C.L. Oxon., F.R.S., late Professor of Anatomy in the University of Edinburgh. *Vol. II.: Thorax, Head, and Neck.* Fifth edition. Revised by ARTHUR ROBINSON, Professor of Anatomy in the University of Edinburgh. With 256 illustrations, most of which are in colour. London, Edinburgh, and Glasgow: Henry Frowde and Hodder and Stoughton. 1912. Pp. 616. Price 10*s.* 6*d.* net.

SEEING that it is only two years ago since we published the review of the fourth revised edition of "Cunningham's Manual," it is obvious that the popularity of this excellent work is well maintained. In reviewing the previous issue we had occasion to note that a few of the recently added illustrations needed some improvement in the precision of their colour printing and in their index lines. We now note that the block of Fig. 94 has been made a great deal more clear; but still the indices for the internal carotid artery and for the internal jugular vein do not point to the proper structures. With regard to Fig. 99 there is but little improvement; the small and great occipital nerves, though possessing indices, do not appear to be defined in the illustration, and the sterno-mastoid artery figured is a very curious one, and one that is likely seriously to mislead the student.

The coloured illustrations add enormously to the attractive appearance of the work, but one needs to be assured that they do something more than this—that they render the figures more clear and easy to understand. It cannot be said that in all cases they do fulfil this function. Some are very beautiful examples of colour printing, but are probably not so clear to the student as a plain black and white drawing would be; many would be improved by the limitation of colour to one structure or set of structures, for there is no gain of definition when arteries and muscles are all coloured

red (Fig. 73). Again, the colouring may lead to confusion unless it is used with a definite and uniform purpose. In the adult heart the pulmonary veins are coloured red, in the figure of a fœtal heart (Fig. 39) this colouration is still maintained, although the inferior vena cava is also coloured red. The book is and always has been a good one, and it needs no spurious attractions added in the shape of colouration that is purely for ornament, and which does not add to, but sometimes detracts from, the real value of its illustrations. As in the first volume the B.N.A. terminology is used throughout.

Mental Derangements in India. By Captain OVERBECK-WRIGHT, I.M.S. Calcutta: Thacker, Spink, and Co. 1912. Pp. 366. Price 9*s.* net.

THIS book is intended for the medical practitioner whose work lies in India, and besides giving an account of the phenomena of insanity it deals with the legal proceedings bound up with the subject, which in many respects differ from those obtaining in this country.

The author does not devote much space to such peculiarities as may pertain to the mental disorders of native Indians, nor, apart from poisoning by cannabis indica, would it appear from his work that there are in fact many such. Neither would it appear that mental disorders occurring in Europeans resident in India are notably different from those that obtain elsewhere, though the author is of opinion that the incidence of neuroses and psychoses is higher in hot climates, attributing this in large measure to faulty habits of life. For the most part, then, the work before us consists of an abstraction from the more important etiological, symptomatological, and therapeutic data at present current. Captain Overbeck-Wright has adopted a simple mode of classification of insanity, the more acute varieties being definitely placed in the category of the toxæmias. While far from denying the validity of this classification, we are bound to state that we feel it to be a little premature—certainly premature in a book meant rather for the practical guidance of the practitioner than as presenting a picture of the advanced researches of the pioneers of science. In truth, the classification of insanity is always unsatisfactory because the limits of our knowledge are narrow, and it is as well to be content for the present with the somewhat clumsy but not unpractical classification which is usual in the text-books, rather than to adopt one which, though elegant and symmetrical, is based on hypotheses that are far from verification. There are a few blanks in the work, and we miss any description of the cytology of the cerebro-spinal fluid and of the more psychological aspects of insanity, such, for instance, as the existence and repression of complexes.

The Clinical Pathology of Syphilis and Parasyphilis and its Value for Diagnosis and Controlling Treatment. By HUGH WANSEY BAYLY, M.A. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Pathologist to the London Lock Hospitals, &c. London: Baillière, Tindall, and Cox. 1912. Pp. 194. Price 5*s.* net.

NONE can be found to doubt the value of the bacteriological and pathological tests for the presence of syphilis, but many of those who wish to apply these tests have very vague notions as to the methods to be employed, and many others would like to be acquainted theoretically with these methods, though they are willing to leave the application of them to others. In this little work will be found both the theory and the practice of the clinical pathology of syphilis, and we know no book where it has been more carefully described or more simply expressed.

After a description of the spirochæta pallida and the other spirochætæ with which it may be confused have been described and figured, the Wassermann reaction is discussed. The author is in accord with the majority of recent opinion in thinking that the reaction is not really specific, but that, nevertheless, it is reliable as a clinical test for syphilitic infection. A chapter on the cerebro-spinal fluid in syphilis is given, and the changes in the urine in syphilis are described. Late syphilitic manifestations which affect the nervous system are considered in an interesting chapter. The treatment by salvarsan is fully described, the only method of administration given being the intravenous. The author considers it important that the patient should be prepared before the injection of the salvarsan, for he has found that if the injection be given when the patient has a full stomach and high blood pressure an alarming condition of feeble, rapid pulse and collapse may supervene, accompanied by other unpleasant symptoms. He has never met with these symptoms, however, since he has given the patient a pill the night before and a brisk saline purge on the morning of the injection. He also insists that the patient must have no food for four hours before the injection. The therapeutic results and the dangers are discussed, a short account is given of mercurial treatment, and, lastly, the effect of treatment on the Wassermann reaction is described.

The book gives a very useful account of our modern knowledge of syphilis from a pathological point of view.

Zeugung beim Menschen. Volume II. *Die Zeugung unter Blutsverwandten.* By Dr. HERMANN ROHLEDER. Leipzig: Georg Thieme. 1912. Price, bound, 5 marks; paper, 4.20 marks.

IN this book, which forms Volume II. of his monograph on "Reproduction in Man," the author discusses the relation of consanguinity or inbreeding to the race, and also the subject of incest from the same point of view. After a consideration of the results of inbreeding in the vegetable kingdom and animal world, and the bad effects which usually follow, Dr. Rohleder gives a historical *résumé* of its prevalence among primitive man and the older races of mankind. He then considers the question as to what races there are at the present day among whom consanguineous marriages are prevalent. In an interesting series of tables of the frequency of marriage among near relations Dr. Rohleder shows that the number of consanguineous marriages amounts to about 1 per cent. of the total number of marriages. He further concludes that in the whole of Germany, with its 63,000,000 inhabitants, there are at least some 500,000 descendants of the marriages of blood relations.

The position of the medical man when consulted with regard to the propriety of these marriages is fully considered, and the conclusion is drawn that in cases where both the contracting parties are sound and healthy individuals there is no good reason for advising against the contracts, but that in any case where there is any unsoundness on either side the medical man should do his best to dissuade the parties from marriage. The three conditions which are frequently assumed to be the result of such marriages—namely, congenital deafness and dumbness, retinitis pigmentosa, and mental disorders—are discussed in turn, and the arguments for and against their relation to consanguinity fully weighed. The effect of such marriages on the regeneration and degeneration of a race is undoubted, and the author believes that the results of consanguineous marriages are of a twofold character, partly advantageous and partly disadvantageous. Thus they lead on the one hand to debility and degeneration, and on the other hand to a refinement both of the bodily and mental characters, more particularly in the first generation, so that the presence of consanguinity in one generation and its absence in the next may be the best means of procuring an improvement of the race or of a

people. The remarks of the author on this proposition are of much interest, and he certainly makes out a good case for his contention.

The results of consanguinity are next considered from the biological standpoint, from the morphological and chemical side, both when the parents are in good health and when they are diseased. Finally, in a similar manner, the author takes up the question of the results on the offspring of cases of incest, discussing the subject from the historical, medico-legal, and medical aspects.

There is a full bibliography, and the work cannot fail to interest the student of this important subject.

Diseases of the Throat, Nose, and Ear for Practitioners and Students. By W. G. PORTER, M.B., B.Sc., F.R.C.S. Edin. With 77 illustrations. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent and Co., Limited. 1912. Pp. 275. Price 7*s.* 6*d.* net.

Dr. Porter's main object in writing this book has been to provide the practitioner and senior student with a single volume of moderate size, at the same time embracing sufficient information on the diseases of the throat, nose, and ear to be of value in practice. This is an object by no means easy to carry out in view of the increasing development of the subject and of the corresponding demand for information by the practitioner. To make the book complete within the limits mentioned, attention and space have been given especially to diagnosis and treatment in so far as the latter can be carried out by the non-specialist; therefore, the major operations have not been described, but only the indications for their performance and their general features have been given. For the same reason anatomical descriptions have been omitted, except for the elucidation of special points arising in the text, and illustrations of instruments have also been excluded.

The work is divided into four sections, dealing respectively with diseases of the pharynx, the larynx, the nose, and the ear. Each section is prefaced with a chapter giving an account of the ordinary methods of examination of the region, which is followed by some remarks on general semeiology and therapeutics. The several diseases are concisely dealt with—some that concern more particularly the general practittoner, perhaps, too concisely. To save repetition in the text an appendix has been added giving a classified list of the formulæ more commonly in use in treating these diseases. The book as a whole reflects sound teaching, and recent literature has evidently been laid under contribution. It is well printed and well illustrated; 44 of the 77 illustrations are printed in colours on seven plates which are all original, most of them being drawn from the author's own patients.

The Nature of Woman. By J. LIONEL TAYLER, M.R.C.S. Eng., L.R.C.P. Lond. London: A. C. Fifield. 1912. Pp. 186. Price 3*s.* 6*d.* net.

SOME 13 years ago the late Samuel Butler wrote a most ingenious and interesting book proving, at all events to his own satisfaction, that the Odyssey was written by a woman who lived at or near what is now Trapani, in Sicily, and who introduced herself into her book under the name of Nausicaa. In his preface Mr. Butler quoted the following passage from the *Times* of Feb. 4th, 1897: "The sex difference is the profoundest and most far reaching that exists among human beings. ..... Women may or may not be the equals of men in intelligence ..... but women in the mass will act after the manner of women, which is not, and never can be, the manner of men." Whether Mr. Tayler has read this passage or not, it is the text upon which he has founded his book on the "Nature of Woman," the gist of which lies in his remark upon p. 123, "I ask for nothing else than this ..... that woman should recognise her own individuality and that man should recognise it also, in education, vocation, domestic life, and national representation." And again on p. 137, "This can only be done for woman by being womanly, and for man by acting as becomes a man." Mr. Tayler's views, however, though far from uninteresting, are very loosely put together, so loosely, indeed, that in places his book is incoherent. He asks himself and his readers a number of questions to which apparently neither he nor anyone else has at present found an answer. Man is man and woman is woman; so far we all agree. He quotes with admiration nearly the whole of an article by W. C. Roscoe which appeared in the *National Review* for October, 1858, and tells us that he arrived at practically the same conclusions independently. Roscoe's conclusion is that "the nature of women specially adapts them to govern," and the best sphere of government is the home. Failing this, they should direct "some of the many branches of manufacturing occupation, especially those which can be carried on at home." It is curious and interesting to compare with these opinions that of one of the greatest of woman rulers, the late Queen Victoria, who in 1852, when writing to the King of the Belgians, says, *apropos* of politics and business: "We women are not made for governing—and if we are good women we must dislike these masculine occupations; but there are times which force one to take interest in them *mal gré bon gré*, and I do, of course, intensely."[1]

The Works of Aristotle: De Motu Animalium; De Incessu Animalium. Translated into English by A. S. L. FARQUHARSON, Fellow of University College. Oxford: at the Clarendon Press. 1912. Pp. 698–714. Price 2*s.* net.

THE translation of the two treatises above-mentioned completes Vol. V. of the series of translations of the works of Aristotle undertaken in accordance with the will of the late Benjamin Jowett by Balliol College and the Delegates of the Clarendon Press. The preceding treatise, De Partibus Animalium, was reviewed in our issue of April 15th, 1912, p. 1012. The De Motu Animalium deals with the question of animal movement—i.e., movement in place or translation, while the De Incessu considers the organs of locomotion and the mechanical principles of modes of progression, such as walking, crawling, and flying. The former treatise is the more philosophical of the two, and argues that all movement implies rest. For an animal to move, part of it must be at rest—e.g., the humerus when the forearm is moved, and also there must be something external at rest, such as the solid ground or the resisting water or air. So all movements in the universe go back to a *primum movens*, which is itself immovable. Aristotle then discusses movement under the heads of the four causes—final, efficient, formal, and material. In the De Incessu he goes on to consider the mechanics of movement, and points out how all sanguineous animals move at not more than four points; limbless creatures, such as snakes, move at four points by two flexions. Mr. Farquharson points out in a note that Aristotle did not realise that a snake is practically a polypod in progression, owing to its ribs.

Aristotle is never easy reading, either in the original or in translation, but Mr. Farquharson has rendered these two treatises into simple, plain, and readable English, while his notes really do clear up difficulties, which cannot always be said for notes.

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[1] Letters of Queen Victoria, vol. ii., p. 362.

LIBRARY TABLE.

Pathfinders in Medicine. By VICTOR ROBINSON. New York: Medical Review of Reviews. 1912. Pp. 317. Price $2.50.—It is tempting to guess that Mr. Robinson is young; he is evidently a direct descendant of those young men of whom Thackeray wrote: "There were audacious young Free-thinkers who adored nobody or nothing, except, perhaps, Robespierre and the Koran, and panted for the day when the pale name of priest should shrink and dwindle away before the indignation of an enlightened world." It is a pity that in nearly all Mr. Robinson's sketches of scientific pioneers his own political and free-thinking views lead him to drag in entirely unnecessary jibes at those who differ from him—e.g., p. 31, "clouded by Christianity, the world lay for centuries in the abyss of irrationalism"; p. 192, "Samuel Johnson the arch-obscurantist"; p. 213, "Whitelaw Reid, the American Sycophant to the Court of St. James." These three passages occur respectively in the chapters upon Galen, Hunter, and Jenner, the two latter references having nothing whatever to do with either the life or the work of the subject. The essays themselves are very unequal; those on Aretaeus, Scheele, Cavendish, and Jenner are the best, for they are the least afflicted by fine writing, such, for instance, as disfigures the sketches of Servetus and Darwin. In the latter sketch is a passage upon p. 313 dealing with sexual selection, and commencing, "The nightingale sings, the turtle-dove coos, the katydid babbles, the pigeon nestles close, the cricket chirps in the amorous dusk ....," and so on through 23 creatures, including the lion, which "tosses its jubate mane," as if a mane was not always "jubate." Were Abraham Hayward alive now he would have another passage to parody curiously like the well-known passage of Macaulay in Vol. II. of the History of England, "The grazier drove his beasts to market; the grocer weighed out his currants; the draper measured out his broadcloth ....." and so on. Hayward asked, why stop so long as there is any trade or calling to be mentioned, and he proceeded to continue the passage with apothecaries, wine merchants, fishmongers, general servants, cat's-meat men, harlots, cabmen, and others. Mr. Robinson is anxious to show the power which love has over the creation, *apropos* of how Darwin saw Nature "in moods of love," but why did he stop? Why omit all mention of the oyster, which we know on good authority may be crossed in love? But we wish to be serious on an important subject. We are glad to welcome the attention paid to the history of medicine in the United States. Mr. Robinson is evidently fond of the subject, and if he will keep his predilections out of his history and learn restraint in style, there is good hope that we may yet see a sound historical work from his pen.

Heredity and Eugenics. A Course of Lectures summarising Recent Advances in Knowledge in Variation, Heredity, and Evolution, and its relation to Plant, Animal, and Human Improvement and Welfare. By WILLIAM ERNEST CASTLE, JOHN MERLE COULTER, CHARLES BENEDICT DAVENPORT, EDWARD MURRAY EAST, and WILLIAM LAWRENCE TOWER. Chicago: The University of Chicago Press. London: Cambridge University Press. 1912. Pp. 315. Price $2.50, or 10*s.* net.—The lectures on which this book was founded were delivered at the University of Chicago in 1911. The authors inform us in the preface that the lectures were not intended for those trained in biology, but for a general university audience interested in the progress of genetics as a matter of information rather than of study; consequently, they did not attempt to include any considerable amount of new material. The book is thus a summary of results, which, it is hoped, may perform a service, not only for those interested in biology as a field outside their own experience, but also for those biologists whose work deals with other phases of biology. Each lecturer has dealt with that portion of the subject that fell within the scope of his own special work as an investigator, which accounts, no doubt, for a certain amount of overlapping. The first and second chapters are by Mr. Coulter, professor of botany at the University of Chicago, who, in a general introduction, treats of recent developments in heredity and evolution, and discusses their physical basis from the cytological standpoint. The third and fourth chapters respectively, on the Method of Evolution and on Heredity and Sex, are by Mr. Castle, professor of zoology at Harvard, who records some interesting experiments of his own to support the doctrine of the non-inheritance of acquired characters. Among these the results of grafting the ovaries of a black guinea-pig into an albino, which then produced all black offspring from an albino male, are very striking. The fifth and sixth chapters, which treat of inheritance in the higher plants and of the application of biological principles to plant breeding, are by Mr. East, assistant professor of experimental plant morphology at Harvard. Mr. Tower, professor of zoology at Chicago University, contributes the seventh chapter, on Recent Advances and the Present State of Knowledge Concerning the Modification of the Germinal Constitution of Organisms by Experiment Processes. He describes the modifications of pigmentation produced in a certain kind of beetle by subjecting it to particular experimental changes of temperature and humidity. In no case were these modifications transmitted. The inheritance of physical and mental traits of man and their application to eugenics, with the geography of man in relation to eugenics, are the contributions of Professor Davenport, director of the station for experimental evolution of the Carnegie Institution, Washington. He shows that various characters—e.g., colour of the hair and eyes, early cataract, and diabetes insipidus—may be accurately predicted on Mendelian principles. Such characters are due to the transmission of a "determiner," and are especially characterised by appearing without skipping in each generation and by their relative commonness in any given family. When the characteristic is an undesirable one, eugenic principles advise that the affected person abstain from having children, though unaffected persons having the strain may safely marry unaffected persons with impunity, even though they be cousins. The book is likely to prove of assistance especially to those members of the medical profession who realise the importance to the medical art of the study of genetics, yet are too dismayed by its apparently forbidding complexity to venture on even pleasure incursions into this field of knowledge.

Insomnia, its Causes and Treatment. By Sir JAMES SAWYER, M.D. Lond., F.R.C.P. Lond., F.S.A., F.R.S. Edin. Consulting Physician to the Queen's Hospital, Birmingham, &c. Second edition, with many revisions and additions. Birmingham: Cornish Bros. 1912. Pp. 107. Price 2*s.* 6*d.* net.—Sir James Sawyer's little book on insomnia contains many useful hints on the treatment of a condition of which every practising general physician must have abundant experience. Worldly wisdom and shrewd common-sense are combined with rational therapeutics in these pages, which contain the mature consideration of a mind that has long been devoted to the subject. It is gratifying to note that Sir James Sawyer puts in a plea for a due recognition of the importance of the temperaments, which our fathers studied better than we study. The description furnished of the concomitants of insomnia reveals the accurate and minute observer in every phrase. The causes of insomnia receive due discussion. The curative treatment of insomnia is shown to consist in

the successful employment of a judicious selection from a large variety of resources, medicinal, hygienic, educational, and otherwise. There is no "rule of thumb" cure for insomnia, no royal road of straight progress to the goal, and Sir James Sawyer amplifies the statement by a wealth of widely differing suggestions and recommendations, each and all of which he has adopted in his own practice at one time or another. There is a pleasant combination in these chapters of homely advice with scientific procedure, and no member of the profession, we are convinced, will glance through these attractively written pages without pleasure and profit.

MISCELLANEOUS VOLUMES.

IN continuation of our notes on a series of books on physics and inorganic chemistry (see THE LANCET, Feb. 22nd, p. 542), we may now group together in review a number of books on organic chemistry and some of its special industrial applications, general chemistry, and also on bio-chemistry.

Modern Research in Organic Chemistry, by F. G. POPE, B.Sc., F.C.S. (London: Methuen and Co. 1912. Pp. 324. Price 7*s.* 6*d.* net), will be referred to with advantage on points relating to the recent acquirements of knowledge in the domain of the compounds of carbon. No department of science can compare in activity with the work of the organic chemist. He has indeed bored us at times with the multiplicity of synthetics which he turns out, but it must not be forgotten what a great generalisation underlies this work. We have only to regard the triumphs of synthesis to remind us of the greater light on the processes of life which such studies are throwing. We welcome a volume that is not cumbersome, the contents of which are not tedious and which reflect in an interesting style the trend of organic discoveries.——*A Second Year Course of Organic Chemistry for Technical Institutes: the Carbo-cyclic Compounds*, by F. B. THOLE, B.Sc. (London: Methuen, Limited. 1912. Pp. 186. Price 2*s.* 6*d.*), is another member of the series of "Text-books of Science" published by this firm. Primarily intended for students in technical colleges, it will be found decidedly useful also for those pursuing this particular branch of study at the universities. It has the merit of clear composition and of a story told by an eye-witness of the facts. It combines to some extent theory with practice, but the best feature of the work is its practical side, the directions connected with organic preparations being admirably free from ambiguity.——*Elementary Chemical Theory and Calculations*, by JOSEPH KNOX, D.Sc. (London: Gurney and Jackson. 1912. Pp. 102. Price 2*s.* net), provides a very instructive book on chemical arithmetic adapted to the level of elementary students. The author's plan is simple and effective according to general experience. He explains the principles involved, and follows them up with actual worked-out examples. A series of problems to the point are then given and the answers appended. The selection of problems is a judicious and illuminating one.——*Methods in Chemical Analysis, Originated or Developed in the Kent Chemical Laboratory of Yale University*, compiled by FRANK AUSTIN GOOCH (New York: John Wiley and Sons; London: Chapman and Hall, Limited. 1912. Pp. 536. Price 17*s.* net), is a book which will be esteemed by all analytical chemists, since it records those processes of analysis applied to inorganic compounds which are the outcome of the experience of the workers in the Kent Chemical Laboratory of the Yale University. It is well known that this laboratory has rendered conspicuous service by undertaking original analytical investigations with the view of making the processes accurate and the manipulations connected therewith certain of execution. The improvements already published are considerable, and in many instances of a valuable kind. As one example we may mention electrolytic processes applied to the separation and estimation of metals, coupled with the use of the filtering crucible associated with the compiler's name. All through the book we find that attention to detail is most commendably thorough, while great ingenuity is displayed in the analytical means adopted for the end in view. The book is an addition of the greatest value to the literature of chemical analysis, and will assist analysts in many a difficult situation at the laboratory bench.

Enzymes, by OTTO COHNHEIM, Professor of Physiology, Heidelberg (New York: John Wiley and Sons; London: Chapman and Hall, Limited. 1912. Pp. 173. Price 6*s.* 6*d.* net), gives a very interesting history of these "tools of the cell" from the time of Berzelius and Schwann in the nineteenth century to recent developments. Considering the extraordinary importance of the rôle which these bodies are known to play in the great processes of nutrition no attention to the study of their constitution, behaviour, and action can be too serious. The results of researches on the subject which accrue from the latest views and observations are told in this volume with fortunate clearness. Besides, the writer is a well-known authority and ardent investigator in the very field. The book embodies a series of lectures given at the University and Bellevue Hospital Medical College in the city of New York in 1910, and we can well understand why they were given a most favourable reception. The publication of this admirable collection of lectures leaves no excuse for a non-acquaintance with the subject on the ground that its literature is too widely scattered to make an acquirement of the material principles and facts tedious and inconvenient.——The same subject is necessarily approached in *Oxidations and Reductions in the Animal Body*, by H. D. DAKIN, D.Sc., F.I.C. (London: Longmans, Green, and Co. 1912. Pp. 135. Price 4*s.* net). The importance and progress of bio-chemistry are clearly reflected in this work. "The statements," writes the author, "that fats and sugars are oxidised in the body to carbon dioxide and water, while proteins yield urea in addition, are no longer considered all-sufficient explanations of the chemical rôle of the substances in the animal economy." We have to look now for the orderly succession of chemical reactions constituting the activities of the living cell, and to resolve these into their individual phases. With the details of some of the simpler oxidation and reduction processes occurring in the animal body the monograph deals clearly, and the account is a most interesting one, having bearings, it is hardly necessary to add, upon the future of medical science the importance of which looms large already.——Related again to the ever-widening study of bio-chemistry is *The Simple Carbohydrates and the Glucosides*, by E. FRANKLAND ARMSTRONG, D.Sc., Ph.D. (London: Longmans, Green, and Co. 1912. Pp. 171. Price 5*s.* net), which presents a trustworthy collection of recently acquired material. Emil Fischer has attacked afresh the problem of the constitution of the sugars on which his previous work has shed such a brilliant light, and Dr. Frankland Armstrong has also devoted considerable work to the point raised, and his account brought into line with modern developments will be received as authoritative.

Bio-chemistry once more plays an essential part in the brewing industry, a fact which, of course, receives recognition in *Brewing*, by A. CHASTON CHAPMAN, F.I.C., F.C.S. (Cambridge University Press. 1912. Pp. 130. Price 1*s.* net). Mr. Chapman says, "without exaggeration in respect of the number of scientific investigations of the first order of importance to which it has given rise the brewing industry

stands easily pre-eminent among the industries of mankind," and he has furnished a very entertaining and instructive account of the technique involved in the processes of producing beer. He possesses a practical and intimate acquaintance with the subject which qualifies him to tell a trustworthy tale, and his high view of the scientific importance of the industry is natural and right.——*Tea*, by EDITH A. BROWNE (London: Adam and Charles Black. 1912. Pp. 88. Price 1*s.* 6*d.* net), is one of the series "Peeps at Great Industries," of which "Sugar" was a forerunner noticed in our columns about a year ago. The present volume gives an interesting picture of the tea industries in many lands, the writer adopting an easy conversational style. The facts as she has put them are in a form which should be readily followed by the non-technical or lay reader. We are interested in the following passage (p. 87): "As a matter of fact, tea is very effectually prevented from acting as a tanning agent through the paralysing influence of the alkaloid theine on the tannic acid." This appears to fit in with the conclusions of our own laboratory inquiry upon the subject, which indicated that theine (caffeine) and tannin form a definite compound which is free from the injurious effects of free tannin or free caffeine. The evils following the excessive drinking of tea are probably not to be referred to tannin but to caffeine poisoning.——*A Laboratory Hand-book for Dietetics*, by MARY SWARTZ ROSE, Ph.D. (London and New York: Macmillan and Co. 1912. Pp. 127. Price 6*s.*), provides a very useful book of reference on what may be called the arithmetic of dietetics. It sets forth, in a carefully compiled set of tables, the food values of dietetic substances requiring study of weights and measures, and the comparative cost on the basis of fuel value. Thus at a glance the value of a given food, in regard to protein, fat, carbohydrate, and calorific value may be found. These tables are supplemented by a series giving the food values of food materials used chiefly by weight in terms of standard units. The author has obviously expended considerable time and trouble over the calculations, which will be appreciated by all those who require to construct a formula of food materials for a special dietary. The introductory chapters explain the significance in feeding of the various materials, and we are glad to note here that proper importance is attached to "the ash requirement" or mineral needs of the body.

JOURNALS AND MAGAZINES.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., Professor ALEX. MACALISTER, Professor ARTHUR THOMSON, Professor ARTHUR KEITH, and Professor ARTHUR ROBINSON. Vol. XLVII. Third Series. Vol. VIII., Part II. January, 1913. London: Charles Griffin and Company. Annual subscription, 21*s.*, post free.—The present issue will strike the reader as chiefly remarkable for the inclusion of two papers—the one by Professor A. C. Geddes on the Origin of the Osteoblast and of the Osteoclast, and the other by Mr. T. Wingate Todd on the Development and Growth of Bone. No better demonstration could be given of the maze of uncertainty with which the subject of the growth of bone is surrounded. For Professor Geddes, osteoblasts are cells of the ectoderm, and osteoclasts are real bone-destroying syncytial masses. For Mr. Todd, osteoblasts are connective tissue cells, and osteoclasts are masses of pre-osseous tissue which do not possess chondroblastic or osteoblastic properties. With so wide an initial divergence it is not surprising that the two papers give very different accounts of the processes of bone formation. Professor Geddes has used every refinement of staining and optical methods, while Mr. Todd has dispensed as far as possible with all, and both have produced very beautiful micro-photographs.—Professor Keith describes and contrasts Achondroplastic and Acrocephalic Crania. Achondroplastic changes in the skull are said to depend on arrested growth of the bones entering into the formation of its posterior fossa. Both conditions are due in all probability to deranged function of one of the ductless glands. The paper is illustrated by a large number of outline drawings.—Professor E. Fawcett contributes a detailed paper on the Development and Ossification of the Human Clavicle. This work makes an addition to our knowledge of this much-debated bone; and its development from two primary centres is placed on a firm basis. This research confirms some of the findings of Fitzwilliams, but shows conclusively that it is the outer and not the inner segment of the clavicle which is connected with the coracoid process, and thus destroys some of the arguments derived from the study of cranio-cleido-dysostosis.—Another highly detailed paper is that by Mr. A. B. Appleton on a Variable Feature of the Astragalus, a piece of work of which a welcome feature is that bone variation has been studied in relation to the other tissues which surround the bone.—Mr. P. T. Crymble describes the Gastro-pancreatic Folds, and notes the influence they may have on stomach movements, and the variable way in which they tend to subdivide the lesser sac. Mr. Crymble holds the view that the stomach does not rotate during development.—Mr. T. B. Johnston contributes a paper on an Anomaly of the Vena Cava Inferior, and gives an account of its probable method of production.—Professor J. Symington describes the Contours of the Abdomino-pelvic Cavity, and illustrates some cases by horizontal and sagittal sections.—Mr. T. P. Buist gives a brief account of a Method of Reconstructions by Contour Figure; and Mr. Todd adds a note on the Arterial Lesion in Cases of Cervical Rib, a subject which will undoubtedly receive considerable expansion later. Briefly, the condition described and illustrated is a trophic change of the vessel walls due to pressure upon the sympathetic contribution to the lower cord of the brachial plexus. This is obviously only an introduction to a point around which many important problems hinge.

School Hygiene. London: Adlard and Son. Price 1*s.* net.—The February number of this quarterly is largely made up of reviews of other publications, the annual report of the chief medical officer of the Board of Education and the London County Council school medical officer's report among them. These reviews and abstracts from English and foreign sources are of great use to school medical officers and hygienists, who find an increasing difficulty in coping with the mass of literature constantly being produced. A paper by Dr. Frederick Langmead on Forms of Mental Defect is followed by the report of the discussion thereon, and well shows the thorough spirit which is animating observation and classification of school children. Great divergences of opinion are recorded in the discussion, and no sure ground for founding the base of a real class grouping seems to have been discovered. Dr. H. Maughan Brown draws attention to the relation between carious teeth and enlarged tonsils, dealing with nearly 7000 children. The Concealed Neck-wear of Children and its Meaning forms the theme of an interesting excursion into contemporary superstition by Dr. Eleanor Lowry. Miss Elizabeth de Bruin gives an outline syllabus of lectures correlating civics and hygiene, and Dr. Agnes A. Parson has a report on the effect of needlework on the eyes of infants. It is recommended that needlework be not begun before eight years.

Journal of the East Africa and Uganda Natural History Society. London: Longmans, Green, and Co. Price 4*s.*; to non-members, 5*s.* 6*d.*—Not many medical men in this country have either time or opportunity for studying the natural history and archæological treasures of

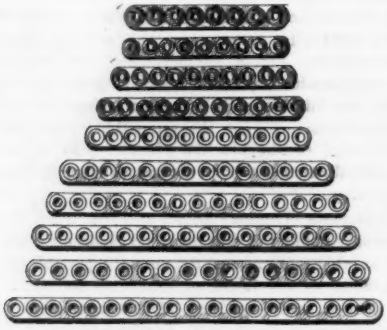
Africa at first hand, though both subjects have attractions for some members of the profession. These will find in this journal much interesting and useful information. The issue for November, 1912, which lies before us, contains notes on the collecting of sea fish at Mombasa, on the spitting cobras, and articles on early man in British East Africa, the game of North Kavirondo, the snakes of British East Africa, and a list of the plants and trees growing in the Provincial Commissioner's garden at Nairobi. There are also two interesting articles on the preservation of sea fish by the formalin and soda solution known as "Jores'." Specimens preserved by this method are said to retain their natural colours. Some of the illustrations are particularly well reproduced.

New Inventions.

MULTIPLE-HOLE STEEL PLATES FOR THE TREATMENT OF FRACTURES.

I HAVE found that in the operative treatment of fractures it is very useful to be able to use a plate perforated throughout its whole length with holes to receive the screws, and have modified Mr. Arbuthnot Lane's steel plates in this manner. The plates are made in all sizes from 2 inches in length upwards, each size having one more screw hole for each successive length of plate. This slight difference,

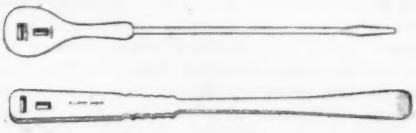
FIG. 1.



Multiple-hole plates.

amounting only to one-quarter of an inch, allows of a plate being used which exactly suits any length of wound or fracture to be dealt with, and does away with the use of a plate either a little too long or too short for the individual case. This is of vital importance in dealing with a fracture

FIG. 2.



Turnscrew and bone lever with slots in the solid handle.

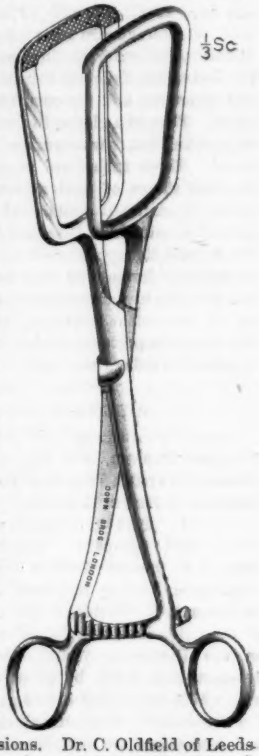
of the lower third of the tibia, where the plate, if unsuitable, approaches very close to the ankle joint, as well as interfering with the tendons and their sheaths in that neighbourhood. The multiple holes allow of the screws being placed where sound bone is beneath them. Two or three screws may be placed in either end, and a larger or smaller part of the plate in the centre may be left as the bridge piece, as the nature or comminution of the fragments requires. The plates so constructed, of soft Bessemer steel, are cheaper to make, as there is no expensive hand filing or machining of the recesses on the outside of the steel between the holes. The centre of the plates being bored out and countersunk, they are quite as light as the older pattern and quite strong enough. They also bend more equally when held in the slot made for that purpose in the solid handle of the turnscrew or raspatory elevator. The holes are made as close together as possible and are bored to suit ordinary screws used for woodwork of No. 5 gauge. It is not necessary to have screws specially threaded up to the head, as is so often advocated, as the unthreaded portion of the screw is chiefly in the steel plate and in a $\frac{3}{8}$ in. screw does not project any marked amount beyond it. As I never disturb the periosteum if it can be avoided, a certain amount of soft tisssue remains as a packing between the plate and the bone, and as a result only the threaded part of the screw really engages in the bone.

The plates, as well as the turnscrew and elevator with slotted handles, have been made for me by Messrs. Smith and Sheppard of St. Stephen's Green, Dublin.

R. LANE JOYNT, M.D. Dub., F.R.C.S. Irel.,
Dublin. Surgeon to the Meath Hospital, Dublin.

A VAGINAL CLAMP FOR WERTHEIM'S HYSTERECTOMY.

IF any excuse is necessary for the introduction of this instrument, it may be found in the fact that on a recent visit to London I was shown some half-dozen experimental designs of instruments intended for the above purpose. Moreover, every operator whom I have consulted has confessed that he has found much difficulty in the universal application of any of the clamps at present in use. My own personal experience of these instruments has been most unsatisfactory. The clamp which I have designed is well illustrated in the accompanying diagram and its application is very simple. When the uterus is isolated from all its attachments and the vagina is freely exposed, the jaws of the clamp are opened and passed over the fundus uteri. The uterus is then slipped through the fenestration of one of the jaws (preferably the anterior) and the clamp is pushed down until the transverse limbs of the jaws lie across the upper end of the vagina, when the clamp is closed. All septic discharge is thereby shut off from the operation field and at the same time the instrument can be used as an efficient tractor and any slipping is impossible. The width of the jaws at the widest point is 3 inches, which allows plenty of room for any manipulations in the pelvis. The instrument can be used for any case except one in which a large fibroid coexists with malignant disease, when the fibroid must first be enucleated. I have only used this instrument twice, but it acted admirably on both occasions. Dr. C. Oldfield of Leeds has also used it twice and speaks most favourably of it. I am confident that it will prove of great value in the successful accomplishment of the operation for which it was designed.



Messrs. Down Bros., Limited, St. Thomas's-street, London, S.E., have made the instrument for me and have taken great pains to perfect the design. My thanks are due to them for carrying out my suggestions.

Bradford. J. BASIL HALL, F.R.C.S. Edin.

THE LANCET.

LONDON: SATURDAY, MARCH 1, 1913.

The Indiscriminate Use of Drugs.

THE principles of therapeutics are very little understood and appreciated by the laity. The most supreme ignorance is generally demonstrated in regard to the nature and action of drugs, the sole idea of treatment amongst the public seeming to be that certain preparations relieve certain symptoms, and that when particular phenomena present themselves, such as pain, cough, or insomnia, the same remedies must be used, no matter what the origin of those symptoms. Taking drugs without consultation with a medical practitioner is undoubtedly on the increase, and it is the delight of some individuals to advise their friends to take certain things for the relief of their ills. Excellent preparations have been issued by pharmaceutical chemists, and many of them form convenient combinations for administering remedies; but the danger of using them without a prescription is a real one. The subject has been dwelt on in these columns very often, but it is as topical as ever, and we strongly advise all our readers, when puzzled by some of the manifestations of their patients, to take into account the possibility that they are self-druggers. Many of the popular preparations are, of course, harmless, only containing simple ingredients such as bicarbonate of soda and carminatives; but when more potent remedies are used, for example narcotics, the risk becomes imminent. Slight ailments, vague aches and pains, are borne with a varying amount of patience by different individuals. In many the least departure from health is a signal for the self-administration of drugs. Insomnia is a more terrible thing for one man than for another; but the habit of taking soporifics is always dangerous, whatever the preparation selected be. The inquests held from time to time clearly prove the easy manner in which large quantities of narcotic drugs can be obtained and their result.

This danger has been considerably increased by the "medical column" in the lay press, generally, we regret to say, written by "a physician" or by "a physician and surgeon." It is fair to say that words to the effect, "you should consult a medical man," are frequently inserted, but, nevertheless, no approval can be given to prescribing on the mere relation of symptoms. We particularly insist on the injunction that remedies for insomnia should never be suggested in this manner. As an illustration of the false ideas that may be engendered in the public mind, we may draw attention to an article which appeared in the *Daily Mail* recently under the heading of "The Veronal Habit—Increasing Strain of Modern Life. By a Physician." The author of this article rightly draws attention to the fatal results which have followed "not their use but their gross abuse" of such drugs as chloral and the bromides, but he then proceeds to extol the virtues of veronal as a hypnotic. His remarks are misleading and show a want of judgment that is greatly to be regretted. He first states that "the weak-minded persons who can use no judgment ought not to be allowed to have in his possession medicines of any kind, whether on a doctor's prescription or not." There is much truth in that remark, but there is nothing to prevent such a person from reading the article, and if he suffers from insomnia purchasing some veronal and using it with alarming results. The friends of the sufferer may know that he is weak-minded; but his own idea of himself is likely to be that he is a brave, shrewd fellow. Veronal may be among the safer hypnotics, but this is not the unanimous opinion of physicians. Eight grains have been known to prove fatal to an adult, and 10 grains not uncommonly give rise to alarming symptoms. From the article we are referring to, however, the lay reader would be justified in believing that veronal may be taken by anybody in from doses of 5 to 15 grains without danger and without the risk of acquiring a drug habit, the only warning given being that it should not be used if the kidneys are diseased.

The instruction of the public in drug-taking in this manner must be strongly condemned. There is to-day a genuine demand for a "medical column" in the lay press, and not infrequently the public now receive through the medium of their morning paper quite sound information upon medical happenings. But there are two main dangers in the issue of medical information in the lay press. First, drugs to which a distinct risk is attached may be prescribed, such as the cardiac depressants and the hypnotics; also, amongst the public there is a strong impression that temperature may be reduced by means of drugs, and consequently dangerous doses of antefebrin or the salicylates are often taken without personal advice as to the cause of the temperature. The second danger is that the "medical column" should turn itself into the medium for medical advice by correspondence. Symptoms are then described by the patient which, although not apparently of great import, may be the early manifestation of serious organic disease. Their meaning can only be detected by careful clinical examination, and the true nature of the malady not being recognised at a stage when treatment would be most successful delay may greatly influence the prognosis. The journalist who presumes to give therapeutic advice upon written information is a dangerous and unsound person. The journalist who explains to the public our real aims and the right attitude in professional circumstances, who stimulates public interest in medical affairs by a just appreciation of our progress, and who possesses a broad-minded ability with which to criticise our shortcomings and anomalies, is a valuable writer.

Physical Characteristics of Migrants to the United States.

THE science of atnhropology has lately received from Professor FRANZ BOAS, of the Columbia University, New York, a valuable addition in the shape of a treatise on the physical characteristics of migrants to the United States from certain foreign countries.[1] In the course of the last half century inquiries have been instituted in Europe by which the fact has been established that the inhabitants of various parts of our continent show fundamental differences of type which, speaking generally, are distributed according to geographical areas rather than according to nationalities. The dwellers in the Alps may be instanced as showing considerable similarity in type, whatever the language which they speak. The present volume embodies the result of an inquiry recently authorised by the American Immigration Committee for the purpose of determining whether American environment produces a favourable or an unfavourable effect on the bodily form of the descendants of foreigners residing in that country.

The environment in the great cities of the world, new or old, differs materially from that in smaller towns, and that again differs from the environment in country districts. A knowledge of the effects of dwelling in the congested areas of populous centres is universally regarded as of supreme importance. This aspect of the problem has accordingly received special attention in the course of the inquiry into the fate of the American immigrant. It is the alien population in large cities with which Professor BOAS'S investigation is mainly concerned. In its initial stages it was limited to the East European Hebrew; but as time progressed it was extended to immigrants from parts of Italy south of Rome, Bohemians, and Hungarians, as well as to immigrants of Scottish descent. In the course of his labours Professor BOAS received much valuable assistance from Dr. C. WARD CRAMPTON, of the New York schools, and from Dr. MAURICE FISHBERG, whose investigations among the Jews indicated the practicability of the whole undertaking. In planning the inquiry Professor BOAS selected those measurements that would most clearly define for each group: (1) The stage of development and (2) the characteristic racial type. For the former purpose a record of the stature, weight, and physiological development was demanded: and for the latter, particulars of head measurement and of variations of pigmentation. In order to ascertain the amount of differences of type existing among residents in America, it was decided to classify them with reference to their descent, as well as with reference to the country of their origin. The investigations of GOULD and of BAXTER respecting the physical condition of soldiers during the War of Rebellion, and those of H. P. BOWDITCH respecting the development of Boston school children, are adduced to show that under more favourable environment the physical development of a race is capable of material improvement. In this country, not less than in America, this is regarded as an established truth, constituting the mainspring of much public effort for sanitary advancement. Hitherto, the stability of human types has been generally taken for granted. But the evidence now submitted by Professor BOAS is apparently in favour of a great plasticity of human types. Moreover, the permanence of types in new surroundings seems to be the exception rather than the rule. By the recent investigation much more has been accomplished than had ever been anticipated. Although only a portion of the problem has been attacked, sufficient has been learnt to warrant the contention not only that decided changes obtain in the rate of development of immigrants, but that far-reaching variations of type have taken place which can only be accounted for on the hypothesis of altered environment. This contention has been critically examined, and seems to be amply justified. The bodily traits which have been observed to undergo change under American environment belong to those characteristics of the human frame which are considered to be most stable. From this Professor BOAS argues that if these traits change under the influence of environment, presumably none of the characteristics of human types that come to America can be regarded as stable. The adaptability of the immigrant is thought by Professor BOAS to be very much greater than would have been believed prior to the institution of these careful researches upon an orderly and scientific plan.

In investigating the changes in bodily form of the descendants of immigrants the chief features noted were stature, weight, dimensions of head, and colour of hair. The following were selected for special examination, as representing the most distinct European types: the Bohemians, Stovaks and Hungarians, Poles, Hebrews, Sicilians, Neapolitans, and Scotch. The changes may be summarised briefly. The Bohemians, Stovaks and Hungarians, and Poles exhibit uniform changes. Among the American-born descendants of these types the stature increases and there is a decrease in the cephalic index, the term which expresses the width of the head as a percentage of its length. The width of the face decreases very considerably. The Hebrews show changes peculiar to themselves. Their stature and weight increase, the cephalic index decreases materially, the width of the face also decreases. Among the Neapolitans the changes are less pronounced than among the Sicilians, notwithstanding the many intermixtures of peoples that occur in Sicily and the adjoining parts of Italy. The stature of the Sicilians born in America is less than that of the home born; this loss is not so marked among the Neapolitans. In both groups the length of the head decreases, its width increases, and the width of the face decreases. In several of the European types the form of the head, one of the most stable characteristics of human races, undergoes far-reaching changes coincident with the transfer of the people from European to American soil. Thus the East European Hebrew, whose head is normally very round, becomes longer-headed; the South Italian, who in that country has a long head, becomes more short-headed; so that in America both approach to a uniform type. The width of the head in proportion to its length is about 78 per cent. among Sicilians born in Sicily, and about 83 per cent. among Hebrews born in Eastern Europe. Among Sicilians

[1] "Descendants of Immigrants." Henry Frowde. 7s. 6d. net.

born in America the figure rises to more than 80 per cent., while among East European Hebrews born in America it sinks to 81 per cent. Professor BOAS regards the foregoing as the most suggestive fact revealed in the course of the investigation, because it shows that not even the characteristics of a race which have been proved most permanent in their own homes remain the same in their new surroundings. He declares himself bound to conclude that when these features change the whole bodily and mental make-up of the immigrant are liable to change likewise. As the facilities for interchange of populations increase almost hour by hour, this conclusion is a matter of the profoundest importance to anthropologists—and to some extent every medical man is bound to be an anthropologist. We hope that more systematic work will be done in similar directions now that Professor BOAS has led the way.

Miners' Nystagmus.

MANY theories have been advanced to account for miners' nystagmus. The myopathic theory is most familiar to English readers from its advocacy in the writings of the late SIMEON SNELL, who attributed the disease to prolonged looking upwards in the course of the miner's work, thus bringing about overstrain of the extrinsic ocular muscles. More recently Dr. A. CHRISTIE REID has put forward the view that it is due to disorder of equilibration. ROMIÉE had previously suggested the dimness of the light in which the work is carried on, combined with excessive accommodation, as the cause. Some painstaking researches and personal investigations by Dr. T. LISTER LLEWELLYN have recently been published[1] which mark an epoch in the history of this disease. Dr. LLEWELLYN advances cogent arguments in support of the view that the disease is almost entirely due to poor illumination. His inquiry into the disease has clearly been most thorough and practical. He discusses fully its general signs and symptoms, its frequency, and the resulting incapacity therefrom, the conditions that determine the occurrence of nystagmus, and the diagnosis and prognosis. His book gains special value from the fact that in it not only are the observations of others reviewed and discussed, but a wealth of new and carefully sifted material has been added to our knowledge by his original investigations of the methods and character of the illumination at the coal face. He shows that the occurrence of the disease is limited to those pits in which the safety lamp is used, while those in which naked candles are used escape almost entirely, the few cases found in them being those of miners who have migrated to these pits from safety lamp pits. He has made actual measurements of the illumination under the exact conditions of work. The interest of the condition from the purely physiological point of view of vision in a dull illumination also has not escaped him.

The numerous photographs of the position assumed by the collier at work illustrate, as no mere description could do, that the hewer or coalgetter, who suffers more frequently from nystagmus than any other class, has very rarely to elevate his eyes except for the examination of the roof. The photographs also, exposed, developed, and printed under precisely similar conditions, of the luminosity of different kinds of lamps carry conviction not only as to relative brightness, but also as to the diminution in the amount of light given out by the same lamp in the course of a shift. The proof of the lack of illumination will probably startle the mining engineer. If, as Professor J. S. HALDANE is sanguine enough to say in the preface which he contributes to the volume, it acts as a stimulus to the introduction of better lamps, miners' nystagmus will in a few years be practically a thing of the past. At present, however, each succeeding year's statistics of compensation show an increasing number of miners incapacitated by the disease, the cost of which to the mining industry Dr. LLEWELLYN estimates at £100,000 per annum. The dogmatic view that no person who has suffered from incapacitating nystagmus should ever be allowed to resume work underground does not find support in this book in its entirety, while Dr. STANLEY RISELEY, in an address which we publish this week, goes further and maintains that, generally speaking, a man with bad nystagmus can work and do good work, and is no worse for doing it. There are, it is true, exceptional cases where return to work underground may be disastrous, but in slight cases many miners can, and do, resume such work without serious consequences after some months' employment on the surface. The section dealing with this most important point ought to carry weight with medical referees who may have to assist the county court judge in deciding questions depending thereon. The certifying surgeon, also, on whose certificate a claim for compensation depends, will find new matter in the book to help him, especially in the aid to diagnosis from use of the "head test." We think that Dr. LLEWELLYN'S views will carry conviction, and that his work will materially contribute to a solution of this problem among occupational diseases.

[1] Miners' Nystagmus, its Causes and Prevention. By T. Lister Llewellyn, M.D., B.S. Lond., Tyndall Research Student of the Royal Society; Medical Officer to the North Stafford Employers' Insurance, Limited. With a Preface by Professor J. S. Haldane, F.R.S., and a Legal Appendix by Douglas Knocker, M.B. Lond., Barrister-at-Law. London: The Colliery Guardian Company, Limited. 1912. Pp. 158.

Annotations.

"Ne quid nimis."

"DISCIPLINE MUST BE MAINTAINED."

THE action brought on behalf of a boy named Shepherd against the Essex County Council and the teacher of chemistry at its school at Ilford came to an eminently right conclusion with a verdict for the defendants. Young Shepherd, a lad aged 16, attending a class in chemistry provided by the council in its capacity of education authority, had handed to him in the course of instruction a piece of phosphorus, and was able without detection to transfer it, or part of it, to his pocket. This was done, according to the defendants, with a view to playing with it at home. The phosphorus ignited in the pocket, burnt the boy, and caused him injury, for which he claimed damages through his next friend, on the ground of negligence on the part of the instructor. That gentleman, according to the plaintiff's case, ought to have given warning as to the dangerous properties of the substance with which he was dealing, or,

if he did in fact do so, he ought to have made his warning more explicit, and he ought to have exercised more supervision, knowing the habits of schoolboys, in order that nothing so wrong as the abstraction of a substance provided for instructional purposes should take place. The jury found for the defendants, as we have stated, being no doubt of the opinion, after hearing evidence on both sides, that the lad had ample warning, and either knew that there was danger of phosphorus becoming ignited if carelessly treated, or had every opportunity for knowing it; and also that Shepherd brought upon himself a somewhat severe, but not altogether undeserved, punishment by conduct unworthy of a boy of his age, presumably about to enter upon the responsibilities of life as a wage-earner. "Boys will be boys" is a trite proverb which must be applied in such a case with due consideration for circumstances. No one would apply the term "thief" to a boy of 16 acting as young Shepherd did. Boys have ethical standards of their own, and acts of a larcenous character, which would be condemned as such if their doers were a few years older, are condoned under some other term. In Victorian days boys of higher social status than Shepherd would have used the word "bagging" as a euphemism for "stealing" applicable to methods of obtaining possession of desired articles—conduct which they now regard with strong disapproval in their sons. At a certain age we discard the language and renounce the ethics of our boyhood, and that age, we would suggest, must vary to some extent according to a boy's circumstances. It is not likely to come too soon. The necessity for a change to a certain gravity of conduct and moral responsibility may be insisted upon without any desire that "boys" should be any less "boys" in their more attractive and essential attributes. If we were to apply what we have said to Shepherd's case, we should observe that a lad 16 years of age, taking advantage of the excellent opportunities for education and self-improvement afforded by local education authorities under laws of which his grandfather never dreamt, if he has not already begun to earn his living by his own exertions, is equipping himself for so doing, and standing as he does at the threshold of his career, is not in any way too young to take himself seriously. In the evidence given at the trial there was something said about "rowdiness" taking place when the lecture on phosphorus was about to commence, the suggestion being that under the cloak of it phosphorus was abstracted without the instructor's knowledge. No doubt that gentleman had his hands full with the combined duties imposed upon him of teaching and keeping order simultaneously. Rowdiness in class among boys of Shepherd's age is a thing to be sternly put down. It may be inevitable with little boys between the years of 8 and 14, but there should come a time when those who expect very soon to be employed in offices, warehouses, shops, and other places, where their misconduct will meet with short shrift, should sober themselves and endeavour to make the best possible use of their chances. Chemistry, by the way, is of all others a subject not to be lightly undertaken or trifled with. At the trial upon which we have commented a good deal was said of what the county council's teacher of chemistry ought to have done or might have done, but such incidents as that out of which a serious and costly action at law arose on this occasion would be of very rare occurrence if care was exercised in the fulfilment of their duties, not by teachers but by parents. We have suggested that boys about to leave their schooldays behind them should learn to behave themselves, and we would add that the duty of teaching them to do so rests with their fathers and mothers, or whoever may stand in the place of these, rather than with their schoolmasters. Lessons of discipline, however, must be commenced early at home; rebuke and objurgation at the last moment will never take the place of timely training.

CERVICAL RIBS.

IT is probable that never before have so many cases of cervical rib been brought together as were collected at the meeting of the Clinical Section of the Royal Society of Medicine on Feb. 14th, and in the discussion which followed the various aspects of the subject were ably treated by the several speakers. The Fellows present were able to see the cases and then they were able to hear the discussion as to the mode of production of the symptoms and the treatment which had been adopted. In some of the cases the symptoms were of recent occurrence, in others the duration had been great; in some no treatment had been adopted, while others showed the results which treatment had achieved. The debate on cervical rib opened with a very interesting paper by Dr. F. Wood-Jones, who showed that the absence of ribs in the cervical region was due to the great development of the nerves of the brachial plexus, the pressure of the nerve-trunks causing atrophy of the cervical ribs. Moreover, when the brachial plexus is moved downwards one vertebra, as not rarely happens, the first thoracic rib is frequently ill-developed and may cause symptoms identical with those caused by a cervical rib. He was inclined to think that the normal groove on the upper surface of the first rib was really due to the pressure of the first thoracic nerve. As to the vascular symptoms he believed that these also were due to the nerve pressure affecting the sympathetic nerves of the upper limb. This paper was a very good foundation for the subsequent discussion, for it served to make clear the *modus operandi* of the pressure. The speakers who followed dealt with the symptoms and the treatment of the condition. It was shown that the condition is usually bilateral, but that often the rib is unequally developed on the two sides; yet that the symptoms may be unilateral, and even then the symptoms are not necessarily the most marked on the side which has the longer rib. Furthermore, it was made clear that it must be not at all rare for the rib causing the symptoms to be an abortive first thoracic rib and not one attached to the seventh cervical vertebra. From the cases shown it was clear that the condition is much less frequently seen in men than in women, or at all events symptoms resulting from a cervical rib are much more frequently met with in women than in men, for every case shown that evening was in a woman. Yet cervical ribs are seen in men, but the inequality of their appearance in the two sexes is very marked. It has been suggested that the rib originally removed from Adam was really a cervical rib, but the solution of the problem may be found in the fact that in the two sexes the slope of the clavicle is different. In women the clavicle slopes much more down and out than in men, and this downward slope will cause a greater pressure from the rib on the lower cords of the brachial plexus. In the young the clavicles are less sloped, and this will serve to explain the fact that symptoms are rare in girls, and do not appear until adult life is reached and the greater sloping of the clavicle occurs. A further fact in support of this explanation is to be found in the relief which generally follows a raising of the arm, for most patients will say that if the arm of the affected side is supported the pain is less, and it may be noticed that many patients prefer to sleep on the painful side; and it is obvious such an attitude will result in an elevation of that arm. As to the treatment, all were agreed that an operation was only required in those cases in which the pain or the vascular symptoms were marked. As to the incision best

suited for exposing the rib opinions seemed to differ greatly, for while Mr. W. Thorburn held that the best access to the rib was obtained by a long vertical incision at the back of the posterior triangle of the neck, the opinion was expressed by others that the best results were obtained by a horizontal incision parallel to and above the clavicle. There is no doubt that the greatest care has to be taken during the operation not to injure the nerves, for in no small number of cases more or less paralysis has followed the operation. In most instances this paralysis has been temporary, but in some many months have elapsed before it has disappeared, and in a few it has been permanent. The results of operation have been, on the whole, very satisfactory, when it is borne in mind that the condition has no tendency to cure itself; but if the operation has been delayed until muscles have atrophied, in most cases the atrophied muscles will not regain their natural size, but the progress of the disease will have been brought to an end, and the pain will have been relieved. It may be said that all cases are more or less improved, and in about half of the cases a perfect recovery may be obtained. The earlier the operation the greater the chance that the result will be satisfactory, and therefore in any case where the symptoms are even moderately severe an operation is advisable, for no spontaneous cure will occur. An exhibition such as this of a number of cases exhibiting a somewhat unusual condition with the results of operation for it, combined with a discussion as to the cause, the symptoms, and the treatment, cannot fail to prove of much service to all who have an opportunity to be present, and we know of no better way in which the society can assist in the advance of medicine than by similar debates.

JUDICIAL HANGING.

THIS theme is admittedly unpleasant, but there is no reason why this innate unpleasantness should be an excuse for shelving any discussion of the merits or demerits of the present system of despatching our unfortunate fellows who have been duly and properly condemned to death. The plain question is: Are we using the best methods to ensure a certain, sudden, and painless death for these people? and the only answer that can be given is that, if we are still acting on the recommendations of Lord Aberdare's committee of 1886, we certainly are not. So far as we are aware, no more recent official recommendations have been made or adopted; and yet much scientific evidence has accumulated in the meanwhile which compels us to regard the subaural knot, and the long drop, as clumsy and uncertain. Indeed, the committee of 1886 appeared to entertain the same opinion, for an idea—observable in all its findings, and expressed by the President himself—was that it is better to risk decapitation than to produce the prolonged struggle of strangulation. Now even at that time, as many of the witnesses attested, it was well known that these gruesome extremes were not the only alternatives, for it was made clear that death could be produced suddenly and certainly without the risk of dragging the victim's head off (as has been several times done) or the fear of a slow strangulation (as was formerly customary). Several of the witnesses testified to the demerits of the subaural knot when compared with a knot placed under the point of the chin, and on reading the report of the committee's investigations it is extremely difficult to see why the adoption of the submental knot was not made a part of their recommendations. In 1886 it seemed clearly indicated, by the evidence then obtainable, that the submental knot was by far the most effective, and at the present time the evidence seems overwhelming. We have recently published notes in which Dr. F. Wood-Jones has described the lesion produced by a submental knot,[1] and also an experiment in which he and Lieutenant-Colonel John J. de Zouche Marshall, R.A.M.C.(T.), produced complete severance of the cervical vertebræ with a force of less than one-fourth that used in our judicial hangings. All the evidence seems to show that death with a submental knot is certain and sudden; that there is no risk of either decapitation or of mere strangulation; and the conclusion seems to be inevitable that we are not using the best, or the most humane, methods in our present system of hanging. It is admitted that there is a tendency for a knot to slip from the point of the chin, and to obviate this Lieutenant-Colonel Marshall has invented a "chin trough" which holds the rope in position. The question which should now present itself to the authorities is, Granting that the submental knot is the most humane, what is the best method of ensuring the rope being retained at the point of the chin? This question, it seems to us, should be dealt with seriously, for so long as criminals are to be executed it is only fitting that the manner of their death should be the most humane that scientific knowledge can devise. We are inclined to think that other reforms might well be introduced into our present system, and much of its mediæval crudities might be reduced by the abolition, or more complete subordination, of that anomalous individual—the "public or common hangman." In another column we publish a letter from Lieutenant-Colonel Marshall upon the subject of the methods employed in modern executions.

THE EMBRYOGENESIS OF PERIPHERAL NERVES AND THE PERIPHERAL THEORY OF NERVE REGENERATION.

THE relation of the nerve fibre to the nerve cell is far from being a *chose jugée*. Notwithstanding the immense amount of research on the part of embryologist, pathologist, and comparative anatomist, devoted to a matter which the medical student of to-day, if under the influence of a dogmatic teacher, may suppose to be finally settled, we are still very far from understanding the exact connexions between the peripheral nerve in its fully developed form and the neuroblasts from which admittedly it has arisen. The neuron theory put forward in 1891 by Waldeyer has in these days become almost an article of faith in neurology, yet it may be questioned whether certain difficulties in the way of its acceptance are sufficiently recognised, or whether the clinical and experimental facts militating against it receive their due value in discussion. Every one knows what a neuron is and what the neuronic theory means. Another hypothesis, however, has been advanced to account for the facts, known as the cell-chain theory, and it is opposed to the other. In this view the nerve fibre represents a chain of special cells, or segmental neuroblasts, which have only secondarily been brought into relation with the central cell. In each element or neuroblast there arise from its protoplasm a fatty substance, or myelin, and a fibrillated substance, the axis-cylinder or axon. The fundamental differences between the two hypotheses may be thus expressed. According to the neuron theory, the axis-cylinder is the prolongation of a central nerve-cell; the myelin sheath and the neurilemmal sheath, or sheath of Schwann, with its nuclei, constitute the rest of the "unit" or neuron. According to the cell-chain theory, each division of a peripheral nerve, limited at either end by an interannular node or node of Ranvier, constitutes a single, complete cell element; the axon is not the prolongation of a central nerve cell, but a bundle of fibrils differentiated in each

[1] THE LANCET, Jan. 4th, 1913, p. 53.

segmental cell; the myelin is similarly differentiated in each segmental cell; the outer layer of protoplasm forms the sheath of Schwann; there remains a thin zone of undifferentiated protoplasm between the myelin sheath and the neurilemmal sheath, which with its nuclei represents the living element of the cell, while, properly speaking, the differentiated parts have no life of their own, and disappear under pathological conditions. It will be seen that according to this view there is a close analogy, which Durante has emphasised, between muscle and nerve elements. At present opinion is divided among embryologists as to the actual method of development of nerve fibres, some holding the theory of budding from a central cell, others holding the opinion that cell chains are formed. Similarly, there are differences of opinion in regard to the genesis of the nerve fibres of the central nervous system, and as it is widely recognised that the manner of regeneration of any tissue closely follows the manner of its first development, we meet with the same diversity of views as regards the histogenesis of nerve regeneration. A very important contribution to the solution of this vexed question has been made in a paper recently issued in the Transactions of the Royal Society of Edinburgh, written by the late Dr. Alexander Bruce, of Edinburgh, and Dr. James W. Dawson.[1] A young woman aged 30, whose symptoms during life had been those of an anomalous spastic paraplegia, died in a state of great emaciation, and subsequent examination showed that in the spinal cord substance itself, scattered through its whole length except in the upper cervical segments, were enormous numbers of small nodules which were found to be pure neuromata, consisting of whorls of medullated fibres, always in relation to vessels, and completely separated off from the normal cord substance round them. Further, the spinal pia mater was infiltrated throughout with innumerable abnormal medullated fibres; they were so numerous in the pia of the lumbo-sacral cord that the whole circumference of the membrane was seamed with strands of from 4 to 12 fibres cut longitudinally or obliquely or transversely, and in the adventitia of the pial vessels they formed an encircling reticulum. Nodules were also found in the medulla oblongata and pons, but they presented this important and interesting difference, that the fibres within them were not myelinated; most of them showed a network of interlacing fusiform cells, but one or two were evidently of the nature of an intermediary link with the neuromatous nodules of the cord. Other anomalies in this remarkable case may be here passed over, in order to direct attention to the interpretation drawn by the authors from a consideration of their material. They have made out that the nodules consist of fusiform cells, of nucleated protoplasmic tubes, and of myelinated nerve fibres, and they have been able to trace the first of these uniting up in chains to form the tubes, in which, again, they have seen division into interannular segments with laying down of myelin and differentiation of an axon. They are of the opinion that fusiform cells linked on to one another have formed embryonic nerve fibres, in which the specific nerve elements of axon and myelin sheath eventually appear. Apparently the original fusiform cells or neuroblasts have at a very early period in the fœtal life of the patient wandered into the site of development in the mesoderm of the vessels and connective tissue constituents of the spinal cord. It will be realised, then, that this masterly investigation of a peculiarly difficult and complex pathological problem, of which the merest sketch has been here given, confirms the view of the multicellular structure of the peripheral nerve fibre, and is to that extent definitely opposed to the neuron conception. The paper supplies a confirmation of the experimental work of Kennedy, Ballance and Stewart, Bethe, Barfurth, Lapinsky, Raimann, and others. At the same time, the authors have made it clear that function is essential to the complete development—i.e, complete differentiation of the nerve fibre. They can no longer look upon the neuron as a structural unit, but they consider that its trophic autonomy must be retained, and claim that the neuron conception is thus placed in its true light. The whole paper is perfectly lucid which enhances its high scientific value, and while congratulating Dr. Dawson on his share in one of the most important neurological contributions of recent years we recognise how much neurology is the loser by the untimely death of Dr. Alexander Bruce.

[1] Multiple Neuromata of the Central Nervous System: their Structure and Histogenesis. By the late Alexander Bruce, M.D., LL.D., F.R.C.P. Edin., and James W. Dawson, M.D. Transactions of the Royal Society of Edinburgh, vol. xlviii., Part 3, No. 27. Edinburgh: Robert Grant and Son. 1913.

LIGHT RUN AMOK.

WHETHER modern methods of artificial illumination may be counted as partly responsible for increasing defective eyesight is a question worth consideration. There can be little doubt, at all events, that the science of illumination has hitherto had very scant attention paid to it, and it is fairly obvious that the whole system of modern artificial lighting can lay very little claim to being based on any scheme of standardisation. So far, the popular idea of good lighting appears to be in favour of a very powerful source of light without the slightest regard as to its distribution, the misuse and waste of energy producing it, or to its uncomfortable effects upon the eye. Let there be light, and the intensest that can be obtained for the money seems to be the demand. The purveyor who can run the intensest glare throughout his shop premises is regarded as a good advertiser; he is displaying his prosperity. The cheapness of lighting has led to this abuse, but we think the public is entitled to some consideration in the matter. The blazing flame arc light is one of the chief offenders; it makes the eye contract and shudder. We have nothing to say against the triumphs of intense lighting inventions, but surely it is time that the utilisation of such intense sources of light should be developed on humane, scientific, and more artistically effective lines. Bad lighting is an offence against health, just as is bad ventilation, and it is conceivable that the defects of both systems aid and abet in producing a train of symptoms in which the oft-complained headache plays a prominent part. Light run amok is a concomitant of our boasted successes in appropriating great natural energies, but there is not the slightest excuse for the creation of the evil. On the contrary, the intense lighting which we are able to produce would afford a means of imitating natural light in a very effective and pleasant way, if only the lesson taught by natural light agencies were followed. The direct rays of sunlight are obviously avoided if we wish to preserve the eye from discomfort and pain and to see objects distinctly at their best under a beautiful process of illumination. Light is one thing, but illumination is quite another; the first is the cause, and the second the effect. The chief objection to modern systems of artificial lighting is that they are "direct" instead of "indirect," whereas the actual source of light should be invisible to the eye and only the effects of its reflection seen upon the objects in the diffused light stream. Attention should be given to these principles in all methods of artificial illumination, and we welcome the admirable efforts which the Illuminating Engineering Society is making to inculcate them. We may hope before long to see such terms of reproach as "glare" and "flickering" removed from the

glossary of artificial illumination, and the fatuous notion dissipated that a dazzling and brilliant light is necessarily a good light. Artificial illumination is a branch of hygiene which possesses greater significance than it has been credited with, and the more this fact is recognised the more salutary and pleasant, we may hope, will modern systems of lighting become.

DIRECT TRANSFUSION OF BLOOD FOR SEVERE ACCIDENTAL HÆMORRHAGE DURING LABOUR.

AT a meeting of the Académie de Médecine of Paris M. Oui, of Lille, has reported a case in which he had successfully treated accidental hæmorrhage during labour so severe that death was imminent, by an unusual method—the direct transfusion of blood. A young woman, who had previously had five normal pregnancies and labours, ceased to menstruate on Sept 15th, 1911. In the early months of this pregnancy she suffered from constipation, for which she took laxatives from time to time. On Feb. 4th she complained of acute pain in the right lumbar region, and on the following day M. Oui found that the right kidney was enlarged and that there was a considerable quantity of pus in the urine, but after filtration there was little albumin. A lacto-vegetarian diet and urinary antiseptics had little effect on the condition of the urine. At the beginning of June the lower limbs became very œdematous, but the albuminuria was not increased. On July 2nd labour began, and she was examined at 3.15 A.M. The pulse was 70. The uterus was slightly tense, and the sounds of the fœtal heart were muffled. The head presented and had not engaged in the pelvis. The os was of the size of a two-franc piece. A few minutes later there was a sudden flow of liquid blood and clots. M. Oui ruptured the membranes, the head engaged, and the hæmorrhage ceased. He then noticed a marked increase in the size of the uterus, which had become of wooden hardness. The hæmorrhage was evidently due to detachment of a normally inserted placenta. The pulse became small and rapid. The head was born at 3.45. There was difficulty in delivering the shoulders. Finally a big child was delivered, but succumbed. A formidable quantity of liquid blood and clots followed, flowing over the bed in a veritable sea. M. Oui introduced his hand into the uterus and found the placenta completely detached. He extracted it and completely removed the clots which had accumulated in the uterus. An intra-uterine injection of hot water was immediately given and caused the uterus to contract and arrested the hæmorrhage. In a few minutes the general condition became much worse. The pulse was 140 and very feeble, and the patient had lost all colour. Injections of ether, caffeine, and camphorated oil caused momentary improvement. An injection of 500 c.c. of saline solution produced only passing improvement in the pulse. The legs were tightly bandaged so as to drive the blood from them. The same passing improvement was produced, and then the pulse became imperceptible and the general condition relapsed. At 6 o'clock M. Oui decided that transfusion of blood should be performed, and summoned by telephone from Lille—a distance of 20 kilometres—a surgeon, M. Lambret. In the meantime he gave stimulants and injections of camphorated oil and ether. The patient became worse. The pulse could be felt only as almost imperceptible waves. The respiration was intermittent and spasmodic. The skin was covered with cold perspiration, and the patient showed no signs of sensibility. M. Lambret could not arrive before 7.45. He immediately anastomosed the right median cephalic vein of the patient with her husband's right radial artery. He used a circular suture of fine silk and performed end-to-end anastomosis after the method of Carrel. Local anæsthesia was employed for the donor, but no anæsthesia for the patient. Five or six minutes after the transfusion had begun the lips became feebly coloured and the pulse became perceptible. It was a veritable resurrection. As the donor had a small radial artery, which at times appeared to be in a state of spasm, the transfusion was continued for an hour. It was intended to stop after three-quarters of an hour, but the husband, who showed no signs of weakness, insisted on continuing. During the whole time the continuance of the flow of blood was verified every ten minutes by palpation of the vein, in which a thrill was felt. When the transfusion was stopped the patient's pulse was 120. Her further recovery was uninterrupted. The portions of the artery and vein which were sutured were resected and examined. They showed no signs of clotting of blood. This appears to be the first case recorded in France in which direct transfusion of blood was performed for hæmorrhage during labour. After severe hæmorrhages patients can almost always be saved by stimulants and saline injections, but some succumb in spite of all efforts. In this case the renal insufficiency contra-indicated massive saline injections.

THE IDEAL PRACTITIONER.

AMONG all classes of men are to be found at least a few from time to time who approach more nearly to the embodiment of the ideal of their class than do their fellows. Medicine has no monopoly of them, but we rejoice in the grounds for believing that there are proportionately more of them in the ranks of the medical profession than of any other. The regrettable feature is that from the very nature of their idealism their influence is mainly and necessarily local, and it is usually only when the local grief at their loss breaks bounds and becomes articulate that the outer world hears much, if anything, of them. If we may judge from a recent report in the *Dalkeith Advertiser* of the unveiling in the churchyard of Lasswade, N.B., of a memorial to the late Dr. Charles Allan, who for nearly half a century had lived and laboured there, earning the confidence, the affection, and respect of the whole countryside, such a one was he, and we may well ponder a moment over the characteristics, as disclosed in an admirably sympathetic address by the Rev. Mr. Hardie, which made him what he was. The first thing noticeable is the combination of general culture with sound professional skill, which developed, if it did not originate, the toleration, sympathy, tact, and repose—the æquanimitas—which are the most potent factors in gaining the confidence of man, more especially suffering man. The next characteristic which the reverend gentleman emphasised was the possession of "a purely professional mind," a mind that has no joy in turning over the pages of the ledger to see how much one's patients owe one, or in summing up the columns of a bank book to see how much one possesses. "He had no interest in a profit and loss account ..... he was amongst us as one that served." In these words is summed up the ideal of the profession of medicine, an ideal that, however comparatively easily it may come to the man who has embraced the medical calling in the true spirit of a vocation, is proportionately difficult of attainment by him who looks at it from a business point of view. But such an ideal devotion to service can exist only among the free; it cannot be attained as the result of a system which, while placing the subject beyond the need or care for the provision of food and shelter and clothing, subordinates him to restriction and control by others necessarily less fitted than himself to decide the circumstances and conditions under which his work shall be done. He must be, as the Rev. Mr. Hardie said, a "work-first-man, never a fee-first-man"; but also he must be an essential-first-man, not a regulation-first-man. And this is the more important in that upon

it is dependent the final characteristic of the ideal practitioner referred to by Mr. Hardie—that of "a strict, almost a stern, disciplinarian." It is rare to find so apt an appreciation of the ideal practitioner of medicine as that of Mr. Hardie, and we welcome it accordingly.

HEMIPLEGIA IN TYPHOID FEVER.

HEMIPLEGIA in typhoid fever is very rare. In an exhaustive article published in 1907 Smithies could tabulate only 43 cases from the literature of the subject.[1] In the *Canadian Medical Association Journal* for last December Dr. J. M. Pearson has recorded the following case. The patient, a Scandinavian, aged 30 years, was admitted into the Vancouver General Hospital on Sept. 16th, 1911, having been ill for a week. The diagnosis of typhoid fever was confirmed by the Widal reaction. For six days the disease ran a mild course, the temperature gradually falling. On the evening of the 22nd he was slightly delirious, and an involuntary action of the bowels occurred. He slept well that night. When he was roused the next morning for nourishment he had difficulty in swallowing, and two hours later the left arm and leg were found to be paralysed. He was conscious, rational, and able to speak. On the 25th he took food more easily, and there was some evidence of returning power in the leg. During this time the temperature had been rising to 104° F. and the pulse to 108. On the 28th a large hæmorrhage from the bowel occurred, and during the next two days six others followed. He died on Oct. 3rd, the twenty-fourth day of the illness and the tenth after the onset of the paralysis, having been unconscious for some hours. At the necropsy the usual intestinal signs of typhoid fever were found. The heart was normal. The brain was somewhat flattened over the right parietal region, where also there was slight thickening of the meninges. On section, softening was found involving the greater part of the second and third frontal and ascending parietal convolutions, part of the supra-marginal and angular gyri, and the upper part of the temporo-sphenoidal lobe. This area, which was of the size of a small orange, was of a dirty yellowish-grey colour. There were no cavities. The left side of the brain, basal ganglia, and internal capsule on both sides were normal. The right middle cerebral artery was completely blocked for about an inch after entering the Sylvian fissure. The artery was thickened and its lumen filled with a firm semi-fibrous adherent thrombus. This began at a point beyond the branches going to the anterior perforated spot, and extended a short distance into each of the terminal branches of the artery.

AT the Seventeenth International Congress of Medicine, to be held this year in London, the following prizes will be awarded: (1) The Prix de Moscou, instituted in commemoration of the Twelfth International Congress, value 5000 francs, for the best work on medicine or hygiene, or for eminent services rendered to suffering humanity; (2) the Prix de Paris, commemorating the Thirteenth International Congress, value 4000 francs, for a single discovery, or for a collection of original works not dating farther back than ten years, and relating to medicine, surgery, obstetrics, or the anatomical or biological sciences in their applications to medicine; (3) the Prix de Hongrie, commemorating the Sixteenth International Congress, value 3000 crowns, for a work in the domain of the medical sciences, which has appeared in the interval between the two Congresses. The Bureau of the Permanent Commission of International Medical Congresses (10, Hugo de Grootstrat, The Hague, Holland) invites the members to forward to it before June 1st the names of those they deem worthy of any of the prizes, together with a copy of the work upon which the nomination is based. A candidate may present his own application.

Dr. Frederick Taylor has been reappointed to represent the University of London on the General Medical Council.

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[1] Journal of the American Medical Association, vol. xlix., p. 389.

FUNCTIONAL APHONIA:

A METHOD OF CURATIVE AND PREVENTATIVE TREATMENT.

BY CORTLANDT MACMAHON, B.A. OXON.,
INSTRUCTOR FOR SPEECH DEFECTS AT ST. BARTHOLOMEW'S HOSPITAL AND ETON COLLEGE.

THE treatment of aphonia by the method herein described is, as the title suggests, applicable to cases in which, whatever the original cause of the loss of voice, the non-return of the voice is entirely due to functional causes. The treatment is not advanced to take precedence of intralaryngeal faradism in hysterical and neurotic subjects, but it is especially advocated for stubborn and long-standing cases which have hitherto failed to yield to ordinary treatment.

In considering what may be termed the vocal treatment of functional aphonia one may usefully consider what really constitutes the phenomenon, Voice. Voice is air vibrating in the resonating chambers of the body, and these resonating chambers consist of the thorax, the larynx, and the pharynx, the nasal and oral cavities, the ethmoidal and sphenoidal sinuses, the maxillary antra, and the frontal sinuses. In a normal voice these resonating chambers are able successfully to carry out their function of amplifying the minute tone and pitch originating in the larynx caused by the due approximation and requisite tension of the vocal cords. In aphonia there is no adequate approximation of the vocal cords, and consequently no vibration; the resonating chambers are accordingly rendered inoperative, and what speech is audible is produced mainly by friction caused by the ascending air column being passed through a constricted throat and then articulated.

In dealing with cases of aphonia the first thing to be acquired is the ascent of a definite and adequate air column which can be passed at will through the larynx. This is brought about by teaching the patient to acquire a marked inferior lateral costal expansion during inspiration, great care being taken that while this is being attained there is no protrusion of the abdominal wall; then, when the lungs can be properly filled, the second movement, consisting of the strong and deliberate contraction of the abdominal muscles, must be taught. The action of the abdominal muscles, when in contraction, is to pull downwards and inwards the lower ribs and to bring about the very definite ascent of the diaphragm by pressure on the abdominal viscera; as a result of which movement, as a whole, the internal thoracic capacity is reduced at will and the force and quantity of the ascending air column easily controlled. Having acquired a definite air column the next step is to turn the patient's mind to the lips. The orbicular muscle must be made to move as freely as possible, and the patient must be told that when the voice is to be produced it must, as it were, be lifted into the lips. This free-lip movement, combined with the ascent of an adequate air column, will automatically help to get rid of the constriction of the muscles above the larynx, and will leave the soft palate free to perform its function of properly apportioning the ascending air column into the nasal and oral cavities when phonation again occurs.

A short digression is now necessary so that the science of the resonators may be very briefly explained. When vocalisation is occurring there are six vowel sounds or "resonators" which are brought into use. They are "oo," "oh," "aw," "ah," "a," and "ee." They are used alone in words, as, for example, "oo" in "droop" and "ee" in "deep," or they are used in combination as "ah" and "oo" in "sound," "aw" and "ee" in "boy," "ah" and "ee" in "my," "oh" and "oo" in "road," and so on. Two of them, "ah" and "ee," are also used subordinately. For instance, the word "love" is on the "ah" resonator; "little" is on the "ee" resonator. These six

resonators have their own special conformation brought about by the distance between the teeth, the position of the lips and tongue. When the particular position for the particular sound is correctly shaped for, a very important and very interesting phenomenon occurs, in that, in addition to the general resonance always present in the normal voice, overtones and harmonics occur and amplify the original tone to an enormous extent.

Presuming now that the breathing is properly performed and the various resonator positions acquired, an attempt can be made to make the vocal cords vibrate. The "oo" resonator should first be shaped for. The conformation for this is as follows: the tongue is against the lower teeth, the lips protruded as much as possible, and the teeth apart to the extent of about one-third of an inch. A deep breath should be taken through the mouth and the lower ribs strongly expanded. Then the abdominal muscles must be powerfully contracted and at the same moment the sound "oo" attempted on a deep note. If all the preliminaries are carefully prepared the muscles above the larynx will sooner or later relax and the vocal cords will again appreciate what their function is and approximate when voice is desired. If vibration is detected after a few attempts, words beginning with "oo," such as "why," "when," "water," should be asked for. Possibly these can be properly phonated after only 40 minutes' preliminary work. Should this be so, the other resonators are easily acquired, and in a few weeks a strong and resonant voice is established, and, through a knowledge of the science of the resonators having been acquired, the voice will probably be better than it ever was before.

If there is trouble in getting the back of the tongue to descend a tongue spatula should be used to depress it, and in very long-standing cases the sterno-thyroid, sterno-hyoid, and omo-hyoid muscles must be trained so that they are able to contract strongly when speech is attempted. The muscles should be strengthened by exercises, but must be left to contract involuntarily during vocalisation, when the mere desire for a deeply pitched note will cause them to contract.

A predisposing cause to functional aphonia must surely be the constriction of all the muscles above the larynx so often seen where there is voice trouble or speech defect. To guard against functional aphonia following some organic cause of loss of voice an altered conformation above the vocal cords should be brought about, and this is easily acquired by exercising the muscles attached from below to the thyroid cartilage and the hyoid bone. The vocal cords undoubtedly appreciate the condition of things above them, and if the soft palate is low and the back of the tongue high, as is the case when the high note of the soprano or tenor is being produced, they naturally become very tense and endeavour to produce a high-pitched voice, and the effort must necessarily be accompanied by considerable constriction in the throat; but if the conformation above them is altered and the back of the tongue is made to lie low in the throat with a resulting ascent of the soft palate, the condition will then be that which exists during the production of a deeply pitched note, the vocal cords will vibrate along their full length, and the throat above will be unconstricted and open. This latter conformation could easily be established while some organic cause of loss of voice was still existing. The correct breathing and six resonator positions could also be learnt without speech being attempted, and everything would be ready for a resonant voice to be present when medical treatment has overcome the organic cause of the loss of voice. Above all, in such cases the patient must be absolutely forbidden to speak in a whisper. Whispering is simply suggesting functional aphonia, and to allow it is a source of very real danger from a voice point of view.

In overcoming and preventing functional aphonia the great essentials, therefore, to be sought for are resonance and freedom from all constriction. These can be acquired by the possession of a definite air column, free lip movement, a low pitch of voice, and a knowledge of the resonator positions.

A CENTENARIAN.—The death is announced of Mr. W. Allison, a veterinary surgeon at Harrogate, who celebrated the anniversary of his 100th birthday on Dec. 4th, 1912.

MEDICINE AND THE LAW.

Workmen's Compensation Cases.

IN the Court of Appeal recently the case of Harwood *v.* Wyken Colliery Company, Limited, brought forward a point under the Workmen's Compensation Act, 1906, not apparently ever raised before. The workman, Harwood, had sustained an accidental injury causing partial incapacity, and his employers were paying him his full wages for light work, without any agreement being recorded or any award being made, when heart disease supervened, which was not in any way due to the accident and which rendered him unfit for any work at all. The employers thereupon desired to discontinue the arrangement referred to, and in proceedings taken at this point the county court judge made an award refusing to order the continuance of any compensation on the ground that the man's incapacity was due to the heart disease, which would have rendered him unable to work in any case if there had been no accident. The court held that this was wrong, and that a workman in such circumstances was entitled to compensation until it was proved that he had completely recovered from the effects of the accident. A supervening infirmity, which might be heart disease or paralysis, or which might be mere failure of powers through old age, did not affect this. The case was accordingly remitted to the county court judge to fix the rate of compensation. In another case under the same Act, that of Major *v.* the South Kirby, Featherstone, and Hemsworth Collieries, Limited, there had been accidental injury, and partial compensation and light work had been provided for a time followed by full compensation. The latter, however, had been discontinued, and while proceedings were being taken to procure an award under the Act the employers had requested the workman to submit himself for examination by their medical man at their expense. This was refused, and the question for the Court of Appeal (which had been decided in the employers' favour by the county court judge) was whether a request for medical examination of the workman made in such circumstances came under Section 4 of Schedule I. of the Act, or whether, as was argued on behalf of the workman, that section applied only to an examination at the time of the accident. The accident had happened in 1909, and there had been no award or agreement, but the arrangements referred to had been carried out for three years. Section 14 of the Schedule referring to the submission of a workman from time to time after the making of an award was not considered to apply. The court held that the county court judge was right in holding that Section 4 applied to the case before them, and that payments should be suspended until the workman had submitted himself to examination under it. The court was of opinion that more than one examination might be made under Section 4, which did not refer, as had been contended, to one examination only, and that one at the time of the accident. In this case also a new point was raised.

STREET AMBULANCES IN LONDON.

Discussion at the London County Council.

SOME discussion of the question of an ambulance service for the County of London took place at a meeting of the London County Council on Feb. 18th on a report that a coroner's jury, in an inquest on the body of a man taken ill at the Islington Empire Theatre,[1] had added the following rider to the verdict:—

> The jurors are of opinion that a more up-to-date ambulance system is required in London, similar to the electric motor-ambulance system of the City of London.

Mr. E. SMALLWOOD, who for the purpose of raising the question moved that the report be not received, reminded the Council that since the passing in 1909 of the Bill promoted by Sir William Collins it had possessed power to provide an ambulance service. Such cases as that which had been notified by the coroner's jury were a disgrace to the richest city in the world.

Mr. H. L. JEPHSON, alluding to the recent decision of the Council to seek Parliamentary powers this year

[1] THE LANCET, Jan. 25th, 1913, p. 293.

to coördinate and utilise existing ambulance services,[2] remarked that authorities which now maintained ambulance services had no power to use them for other purposes than those for which they were established, and doubtless they were fully occupied in meeting present demands upon them.

Mr. EDWARD SMITH mentioned a case at Clapham in which an old lady of 90 who met with an accident in the street had to lie on the pavement for half an hour before any conveyance could be found, and had to be taken half an hour's journey in a hand-barrow to the Bolingbroke Hospital.

Mr. HAYES FISHER, M.P., expressed the hope that if the Government did not place further burdens upon the rate-payers, London before many years were over would have an efficient ambulance service.

From this point the debate drifted into the question whether Liberal or Conservative Governments had placed the greater burdens upon the ratepayers.

The Rev. J. SCOTT LIDGETT inquired whether any steps had been taken to ascertain the extent to which other authorities were willing to coöperate with the Council in this matter. The specific duties for which these services were established must take preference in any coöperative scheme, and he was afraid most of the existing appliances were antiquated.

Mr. CYRIL JACKSON said there was a very large ambulance service in London which ought to be coördinated. It would be ludicrous to propose a scheme, for instance, which left the police out of account.

Mr. H. J. GREENWOOD, chairman of the General Purposes Committee, which has the question under consideration, declared there was no better way of improving the ambulance service than by coöperating with and extending the existing services. A conference with the various authorities concerned would be obtained when Parliamentary powers asked for had been granted.

Mr. J. D. GILBERT, as a member of the General Purposes Committee, was not aware that it had been definitely decided to seek Parliamentary powers this year, and there was a danger that no authority of the kind asked for would be obtained until the end of 1914. The Council had made no use of the powers it had possessed since 1909.

On a division the motion that the report be not received was negatived by 57 votes to 45.

THE MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, HAMPSTEAD AND NORTHWOOD: A SERIOUS POSITION.

A SERIOUS position has arisen at the Mount Vernon Hospital. This charitable institution for some 50 years has given gratuitous treatment at Hampstead to patients suffering from pulmonary tuberculosis and other diseases of the chest. The work has been carried on with conspicuous success, with the assistance of an enlightened lay authority and an energetic and far-seeing medical staff. Under their influence the hospital became the pioneer in this country of the open-air treatment of consumption while maintaining in other directions a high standard of therapeutics. In 1905, owing to the splendid munificence of one of the committee of management, a sanatorium was opened at Northwood, Middlesex, as a country branch of the Mount Vernon Hospital at Hampstead. The sanatorium, designed by Mr. Frederic Wheeler, is situated upon an estate of 104 acres near Batchworth Heath. It provides for the treatment of nearly 60 persons of each sex. The grounds of the institution are laid out to give opportunities for systematic exercise for patients, and the buildings are admirably designed for the sanatorium treatment of early cases.* The site of the sanatorium is not so good as that of the original hospital, which is exceptionally well dowered in soil and in opportunities for taking full advantages of air and sun. The Hampstead hospital is, perhaps, the best site within 10 miles of London, and has rightly been made a strong point in appeals for support.

Here then we have a picture of an excellent hospital for the treatment of diseases of the chest, founded with public money for that purpose, and supplemented, through the great generosity of a practical worker on the board of the charity, by a country home into which those patients most likely to be benefited by sanatorium treatment could be drafted as occasion arose. Alas, a change has come over that picture. So recently as three or four years ago plans of progress were sketched out by which the capacity of the sanatorium would have been more than doubled, at which time there seemed no doubt that the hospital at Hampstead could easily feed the sanatorium with the necessary patients, and that the charitable public would see to the bill. But the effect of the National Insurance Act has been so severely felt that now the whole charity is in danger. It has been found impossible to give gratuitous admission in the sanatorium any longer, so much have the subscriptions to the charity dropped, while a large number of the beds in the Hampstead hospital have been closed to free patients, and have been placed at the disposal of the London and other Insurance Committees for the reception of insured persons. The life of the charity has become accordingly very precarious, and the responsibility of the committee of management exceedingly heavy.

In these circumstances the committee are said to have decided upon the drastic policy of selling the Mount Vernon Hospital at Hampstead and concentrating all their efforts upon Northwood. Undoubtedly a hard task lies before them, whatever policy they decide to pursue. Adequate charitable support has been of late wanting to the hospital, though there is doubt whether affairs are yet desperate. It is conceivable that the Northwood Sanatorium might become a paying hospital, as an institution for the reception of paying cases at moderate prices, the patients being just above the class of the compulsorily insured; and this can be the only objective of the committee of management if they desire to sell the Hampstead site and building. They consider that to preserve the Northwood Sanatorium as a paying sanatorium and manage it side by side with Mount Vernon as a free hospital is impossible; therefore they propose to sell the Hampstead property and with the proceeds of the sale to enlarge Northwood to receive paying patients. To this drastic proposal, which dates from the end of 1911, although the facts have only become public recently, the medical staff are opposed, considering that the committee of management have not sufficiently appreciated the difference between such an institution as that into which they propose to transform Northwood and a charitable hospital for consumption and diseases of the chest upon which pattern Mount Vernon was founded.

The medical staff claim that they have many strong arguments on their side to which attention must be paid. In the first place, the money which has been subscribed was for the purposes of a chest hospital for gratuitous patients. Apparently subscriptions may still be invited from the public on the same grounds, and this would be wrong under the altered conditions. It is, of course, perfectly certain that Mount Vernon Hospital at Hampstead, with its gratuitous out-patient department, its opportunities for education of the practitioner, and its comparative accessibility to London, must be a very different institution from any paying hospital which could be produced in the palace near Batchworth Heath. The hospital at Hampstead contains all the elements of success that has made it what it is, while the transformation of the sanatorium into a hospital seems likely to be an extremely difficult affair. All proper stress must be laid upon the fact that the generous donor of Northwood is on the side of the scheme for concentrating the work of the institution entirely in that place. The medical staff believe that professional and advanced scientific opinion will take a contrary view, and thoughtful members of the public will inquire whether, at a time when all our machinery for the prevention of tuberculosis should be kept at its highest pitch of efficiency, at a time when efforts for lowering the mortality of phthisis and preventing its spread are proving extremely successful, it is advisable to destroy a medical centre which is extremely well-equipped for treatment, observation, education, and research. To substitute for

[2] THE LANCET, Nov. 30th, 1912, p. 1531.

* The block plan and an illustration of the southern aspect will be found in THE LANCET, July 1st, 1905.

the work of the Mount Vernon Hospital the ministration of a paying hospital, whose buildings and site have not been exactly designed for a hospital at all, would, assuming it possible, might prove extravagant and unpractical. By all means let the sanatorium be placed upon a paying basis, since it would not be easy to appeal to the public for support with the same plea that until recently prevailed. There may be a real need for such an institution as it is desired that Northwood should become, but the staff urge the preservation of the hospital at Hampstead, which should, at any rate, be able to maintain its voluntary character in part. Moreover, it would be relieved from the expenses of the up-keep of Northwood, while able, we suppose, to find accommodation there for a certain number of suitable transfers.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,764 persons, 8364 births and 5931 deaths were registered during the week ended Saturday, Feb. 22nd. The annual rate of mortality in these towns, which had been 17·3, 17·2, and 17·2 per 1000 in the three preceding weeks, was 17·3 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these 96 towns averaged 16·7, against 17·3 per 1000 recorded in London during the same period. The death-rates in the several towns last week ranged from 5·4 in Hornsey, 9·5 in Walthamstow, 9·8 in Edmonton, 10·3 in Tynemouth, 10·5 in Eastbourne, and 11·0 in Southend-on-Sea, to 23·5 in Wolverhampton, 23·8 in Bootle, 25·7 in West Bromwich, 28·2 in Wigan, and 29·4 in St. Helens.

The 5931 deaths from all causes in the 96 towns were 45 in excess of the number in the previous week, and included 482 which were referred to the principal epidemic diseases. Of these 482 deaths, 243 resulted from measles, 81 from infantile diarrhœal diseases, 78 from whooping-cough, 51 from diphtheria, 19 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·4 per 1000, against 1·3 in each of the three preceding weeks. The deaths attributed to measles, which had been 205, 200, and 217 in the three preceding weeks, further rose to 243 last week, and caused the highest death-rates of 2·4 in Barrow-in-Furness, 2·8 in Sheffield, 3·0 in Stockton-on-Tees, 3·3 in Wolverhampton, 6·0 in Swindon, 7·3 in St. Helens, 7·5 in Wigan, and 8·3 in West Bromwich. The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 65, 75, and 79 in the three preceding weeks, further rose to 81 last week, and included 26 in London, 5 in Birmingham, 4 in Manchester, 3 in Stoke-on-Trent, 3 in Liverpool, and 3 in Sheffield. The fatal cases of whooping-cough, which had been 66, 78, and 70 in the three preceding weeks, rose to 78 last week; 22 deaths were recorded in London, 5 in Liverpool, 4 in Leeds, and 3 each in Acton, in Bristol, in Birkenhead, and in Wigan. The deaths attributed to diphtheria, which had been 62, 45, and 53 in the three preceding weeks, were 51 last week, and included 21 in London and its suburban districts, 7 in Portsmouth, and 3 in Birmingham. The deaths referred to scarlet fever, which had been 17, 29, and 23 in the three preceding weeks, further declined to 19 last week, of which number 6 were registered in London and 3 in Birmingham. The 10 fatal cases of enteric fever last week were 6 below the average in the earlier weeks of the year, and included 2 in London and 2 in Salford.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily declined from 2112 to 1701 in the eight preceding weeks, had further fallen to 1667 on Saturday last; 180 new cases were admitted during the week, against 209, 209, and 196 in the three preceding weeks. These hospitals also contained on Saturday last 940 cases of diphtheria, 847 of measles, 312 of whooping-cough, and 40 of enteric fever, but not one of small-pox. The 1574 deaths from all causes in London were 4 in excess of the number registered in the preceding week, and were equal to an annual death-rate of 18·2 per 1000. The deaths referred to diseases of the respiratory organs, which had been 447, 373, and 443 in the three preceding weeks, declined to 389 last week, but were 38 above the number recorded in the corresponding week of last year.

Of the 5931 deaths from all causes in the 96 towns last week, 162 resulted from various forms of violence and 428 were the subject of coroners' inquests. The causes of 48, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Nottingham, Portsmouth, and in 66 other smaller towns. The 48 uncertified causes of death last week included 10 in Liverpool, 7 in Birmingham, 4 in Coventry, 4 in Warrington, and 2 each in Manchester, Burnley, Darlington, and Sunderland.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,260,200 persons at the middle of this year, 1120 births and 808 deaths were registered during the week ended Saturday, Feb. 22nd. The annual rate of mortality in these towns, which had been 20·2, 20·8, and 20·4 per 1000 in the three preceding weeks, declined to 18·7 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 19·2, against 16·7 per 1000 in the 96 large English towns. Among the several Scotch towns the death-rates last week ranged from 11·5 in Motherwell, 11·7 in Kirkcaldy, and 13·2 in Coatbridge, to 21·4 in Ayr, 23·6 in Dundee, and 24·1 in Kilmarnock.

The 808 deaths from all causes were 75 fewer than the number in the previous week, and included 77 which were referred to the principal epidemic diseases, against 88 and 65 in the two preceding weeks. Of these 77 deaths, 50 resulted from whooping-cough, 9 from infantile diarrhœal diseases, 7 from measles, 7 from diphtheria, 2 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 77 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·8 per 1000, against 1·4 in the 96 large English towns. The deaths attributed to whooping-cough, which had declined from 55 to 39 in the three preceding weeks, rose to 50 last week, and included 37 in Glasgow, 4 in Edinburgh, and 3 in Clydebank. The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 5, 10, and 14 in the three preceding weeks, declined to 9 last week, of which number 4 occurred in Glasgow and 3 in Dundee. The fatal cases of measles, which had averaged 3 in the seven preceding weeks of this quarter, rose to 7 last week, and comprised 3 in Glasgow, 2 in Dundee, and 2 in Falkirk. The deaths attributed to diphtheria, which had been 6, 12, and 8 in the three preceding weeks, were 7 last week, and included 4 in Glasgow. Of the 2 deaths referred to scarlet fever, 1 was registered in Glasgow and 1 in Greenock; the 2 fatal cases of enteric fever were recorded in Glasgow and Perth respectively.

The deaths referred to diseases of the respiratory system in the 16 Scotch towns, which had declined from 221 to 192 in the three preceding weeks, further fell to 162 in the week under notice; 23 deaths were attributed to different forms of violence, against 34 and 31 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,199.180 persons at the middle of this year, 620 births and 554 deaths were registered during the week ended Saturday, Feb. 22nd. The annual rate of mortality in these towns, which had increased from 20·4 to 21·3 in the three preceding weeks, further rose to 24·1 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these Irish towns averaged 21·7 per 1000; in the 96 large English towns the corresponding death-rate did not exceed 16·7, while in the 16 Scotch towns it was equal to 19·2 per 1000. The annual death-rate recorded in the several Irish towns last week was equal to 25·1 in Dublin (against 18·2 in London and 19·8 in Glasgow), 25·4 in Belfast, 23·8 in Cork, 19·1 in Londonderry, 17·6 in Limerick, and 20·9 in Waterford, while in the remaining 21 smaller towns the mean rate was 22·4 per 1000.

The 554 deaths from all causes in the 27 Irish towns were 64 in excess of the number in the previous week, and included 37 which were referred to the principal epidemic diseases, against 41 and 35 in the two preceding weeks. Of these 37 deaths, 11 resulted from measles, 8 from infantile diarrhœal diseases, 8 from whooping-cough, 4 from diphtheria, 3 from enteric fever, and 3 from scarlet fever, but not one from small-pox. These 37 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·6 per 1000; in the 96 large English towns the death-rate from these diseases did not exceed 1·4 per 1000, while in the 16 Scotch towns it was equal to 1·8. The deaths attributed to measles, which had declined from 21 to 10 in the three preceding weeks, were 11 last week, and included 6 in Belfast and 2 in Newry. The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 5, 9, and 9 in the three preceding weeks, were 8 last week, and comprised 5 in Dublin and 3 in Belfast. The fatal cases of whooping-cough, which had averaged 4 in the earlier weeks of the year, were 8 last week; 4 deaths occurred in Dublin and 2 in Waterford. The 4 deaths attributed to diphtheria, 2 of which were recorded in Dublin and 2 in Belfast, were slightly below the average in the seven preceding weeks. Of the 3 deaths referred to scarlet fever 2 were registered in Belfast and 1 in Dublin; the 3 fatal cases of enteric fever occurred in Dublin, Galway, and Newry respectively.

The deaths referred to diseases of the respiratory organs, which had been 120, 104, and 115 in the three preceding weeks, further rose to 142 in the week under notice. Of the 554 deaths from all causes, 154, or 28 per cent., occurred in public institutions, and 10 resulted from different forms of violence. The causes of 17, or 3·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff-Surgeons: G. M. Eastment to the *Alacrity*, on recommissioning; H. J. Chater to the *Vivid*, additional, for the *Dublin* (for trials). Surgeons: G. J. Carr to R.N. Hospital, Plymouth; and A. C. Wilson to the *Excellent*.

ROYAL ARMY MEDICAL CORPS.

Colonel A. E. Tate has taken up duty as Assistant Director of Medical Services to the Allahabad and Fyzabad Brigades of the Eighth (Lucknow) Division on transfer from the First (Peshawar) Division, in succession to Colonel H. J. Barratt, transferred.

Lieutenant-Colonel H. P. G. Elkington, in charge of the Military Hospital at Exeter, has been transferred from the Southern Command to the Eastern Command. Lieutenant-Colonel R. H. Barefoot, senior medical officer and in charge of the Military Hospital at Ranikhet Cantonment, has been placed under orders to proceed home in March on completion of his tour of service in India. Lieutenant-Colonel J. Fallon, in charge of the Military Hospital at Dalhousie, has been transferred to Lahore. Lieutenant-Colonel A. T. J. Lilly has been selected by H.E. the Commander-in-Chief in India to command the Military Hospital at Colaba, Bombay, in succession to Lieutenant-Colonel C. C. Reilly, who has been transferred to Belgaum. Lieutenant-Colonel F. S. Le Quesne, V.C., in charge of the Military Hospital at Gravesend, has been selected to take part in an Eastern Command Staff Tour for Medical Services to be held in the vicinity of Aylesbury from March 3rd to 5th inclusive. Lieutenant-Colonel W. T. Mould has taken over charge of the Military Hospital at Fyzabad on transfer from Barrackpore. Lieutenant-Colonel F. W. Hardy, late specialist sanitary officer, North of Thames area, Eastern Command, has taken up duty at Lucknow Cantonment on arrival in India for a tour of service.

Major R. McK. Skinner, specialist in midwifery and diseases of women and children, has arrived home from the Straits Settlements for duty in the Irish Command. Major C. T. Samman, officiating officer in charge of the Military Hospital at Mhow Cantonment, has been granted eight months' general leave of absence home from India. Major F. S. Walker has been transferred from Waterford to Cork, and appointed to hold Medical Charge of the Troops at Fort Camden, Queenstown Harbour. Major H. F. Shea has taken up duty at the Military Hospital, Ambala Cantonment, on transfer from Dagshai. Major H. C. R. Hime, specialist in ophthalmic surgery, has been appointed to the Military Hospital at Bangalore on transfer from Madras. The following officers have been selected to take part in an Eastern Command Staff Tour for Medical Services to be held in the vicinity of Aylesbury from March 3rd to the 5th inclusive: Majors G. H. Goddard (serving at Shorncliffe), L. Humphry (Chatham), A. Chopping (Woolwich), A. O. B. Wroughton (Maidstone), E. B. Knox (Norwich), W. B. Fry (Woolwich), P. S. Lelean (Colchester), and H. R. Bateman (Shorncliffe). Major E. B. Steel has arrived home for duty from India, tour expired. Major C. R. L. Ronayne has arrived home from Gibraltar on leave of absence. Major A. D. Waring, on arrival home from Hong-Kong, has been appointed to the Southern Command. Major B. R. Dennis has been selected for appointment by the Director-General, Army Medical Service, as Recruiting Medical Officer in the London Recruiting Area. Major W. S. Crosthwait, anæsthetist at the Military Hospital, Fermoy, has embarked for a tour of service in India. Major W. B. Winkfield has been transferred from the Military Hospital at Ambala Cantonment to the Burma Division. Major J. H. Brunskill, specialist in bacteriology at the Military Hospital, Curragh Camp, has taken up duty as Specialist Sanitary Officer to the Dublin District, in succession to Major D. J. Collins who has embarked for a tour of service in India. Major E. F. Q. L'Estrange has been selected for appointment to hold Charge of the Military Hospital at Cannanore, Madras Presidency.

Captain F. A. H. Clarke, recruiting medical officer at Glasgow, has embarked for a tour of service in India. Captain W. H. Forsyth, in charge of the Section Hospital at Bronkhurst Spruit, Pretoria, has arrived home for duty from South Africa. Captain W. F. Tyndale, C.M.G., specialist sanitary officer in the Devonport District, has been appointed Joint Edward Jenner Lecturer in Public Health at the St. George's Hospital Medical School, London. Captain T. B. Moriarty, specialist in radiography at the Military Hospital, Lucknow Cantonment, has been placed under orders for duty on board the transport s.s. *Dongola*, which left Karachi for Southampton with time-expired troops on Feb. 26th. Captain C. G. Sherlock has been transferred from the Military Hospital at Dalhousie to Bakloh Cantonment for duty. Captain J. A. Renshaw has arrived home on leave of absence from Bangalore. Captain H. Harding has been transferred to the Eastern Command from the Northern Command. Captain Amy, staff surgeon, and in charge of the Cantonment General Hospital at Ranikhet, has been placed under orders for transfer to another appointment. Captain W. McConaghy has taken up duty at the Royal Herbert Hospital at Woolwich on transfer from Guildford. Captain D. De C. O'Grady has been appointed to the Military Hospital at Rawal Pindi Cantonment on transfer from Barian, Murree Hills District. Captain H. G. Gibson, on completion of a tour of service in the Malta Command, has been appointed to Queenstown for general duty. Captain F. J. Stuart has joined the Military Hospital at Agra Cantonment on transfer from Chakrata. Captain J. C. L. Hingston, at present serving at Wellington, Madras Presidency, has been placed under orders for a tour of service in Burma, and on arrival will be appointed to the Military Hospital at Rangoon. Captain A. T. H. Davis has been selected to hold charge of the Military Hospital at Malapuram, Madras Presidency. Captain J. H. Barbour has been transferred from the Military Hospital at Nowgong to Kamptee Cantonment. Captain O. C. P. Cooke, in charge of the Cantonment General Hospital at Deolali, has been granted six months' general leave of absence home from India. Captain J. H. Gurley has taken up duty at the Royal Victoria Military Hospital at Netley, as Specialist in Ophthalmic Surgery.

Lieutenant E. C. Stoney has been placed under orders for transfer from the Ninth (Secunderabad) Division to the Burma Division for a tour of duty. Lieutenant L. C. Hayes has left the London District and embarked for a tour of duty in Bermuda. Lieutenant E. C. Deane has been transferred from Seaforth to Preston. Lieutenant P. M. J. Brett

has taken up duty at Cosham on transfer from the Military Hospital at Winchester. Lieutenant W. T. Graham has been placed under orders for transfer from the Military Hospital at Tidworth, Salisbury Plain, to the Indian establishment for a tour of service. Lieutenant E. C. Lang has been appointed to the Dublin District. Lieutenant J. H. S. Shields has joined the London District for duty.

INDIAN MEDICAL SERVICE.

Surgeon-General Sir C. Pardey Lukis, K.C.S.I., Director-General of the Indian Medical Service, has been selected for appointment as an additional Member of the Council of H.E. the Viceroy and Governor-General of the East Indies.

Lieutenant-Colonel D. T. Lane has taken up duty as Superintendent of the Ambala District Jail. Lieutenant-Colonel R. Robertson, Officiating Deputy Director of Medical Services to the Second (Rawal Pindi) Division, has been directed to proceed to Kohat for appointment as Officiating Assistant Director of Medical Services at the headquarters of the Kohat Brigade, in succession to Lieutenant-Colonel J. T. Daly. Lieutenant-Colonel W. G. Pridmore has arrived home on leave of absence from India. Lieutenant-Colonel R. J. Marks, on return to duty from absence on leave, has been appointed to the Civil Medical Charge of Gorakhpur.

Major P. P. Atal, at present holding medical charge of the 104th Wellesley's Rifles at Santa Cruz, Bombay, has been selected by H.E. the Commander-in-Chief in India for appointment to hold substantive medical charge of the 129th Duke of Connaught's Own Baluchis, stationed at Ferozopore. Major M. Corry has taken up duty as Superintendent of the District Jail at Multan. H.E. the Governor of Bombay in Council has been pleased to appoint Major S. C. Evans to be Professor of Midwifery at the Grant Medical College, Bombay. Major C. B. Harrison has been granted four months' extension of his leave of absence home on the recommendation of a medical board. Major J. N. Walker has been transferred from Gorakhpur and appointed to hold Civil Medical Charge at Rai Bareli. Major T. Stodart has been placed under orders to proceed to Mogok for appointment as Civil Surgeon, in succession to Captain E. T. Harris, appointed Civil Surgeon at Toungoo. Major E. R. Rost has arrived home on leave of absence from India.

Captain A. D. White, second resident surgeon at the Presidency General Hospital, Calcutta, has been granted two months' privilege leave of absence. H.E. the Commander-in-Chief in India has selected Captain D. M. C. Church for appointment to hold substantive Medical Charge of the 25th Cavalry (Frontier Force) stationed at Bannu, in succession to Major A. B. Fry. The services of Captain A. W. Howlett, officiating superintendent of the Central Prison at Agra, have been placed at the disposal of the Home Department of the Government of India for special employment at Bhim Tal. Captain H. C. Buckley has been transferred from Sitapur to Basti, and appointed to officiate as Civil Surgeon.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd North Midland Field Ambulance, Royal Army Medical Corps: Thomas Read (late Lieutenant, Lincoln and Leicester Brigade Company, North Midland Divisional Transport and Supply Column, Army Service Corps), to be Transport Officer, with the honorary rank of Lieutenant (dated Nov. 23rd, 1912).

1st South Midland Field Ambulance, Royal Army Medical Corps: Lieutenant Hans F. W. Boeddicker to be Captain (dated Jan. 1st, 1913).

4th London General Hospital, Royal Army Medical Corps: Herbert Sherwell Clogg to be Captain, whose services will be available on mobilisation (dated Feb. 3rd, 1913).

3rd Northern General Hospital, Royal Army Medical Corps: the undermentioned Lieutenant-Colonels are retired (dated Feb. 22nd, 1913): William Dyson and Rutherfoord J. Pye-Smith.

2nd Southern General Hospital, Royal Army Medical Corps: Captain John A. Nixon resigns his commission (dated Feb. 22nd, 1913).

Sanitary Service.—Captain Robert Burnet, from the 2nd Wessex Field Ambulance, Royal Army Medical Corps, to be Major (dated Feb. 26th, 1913). Lieutenant-Colonel Frederick M. Williams, Sanitary Officer of the Wessex Territorial Division, resigns his commission (dated Feb. 26th, 1913). Major Robert Burnet to be Sanitary Officer of a Territorial Division (dated Feb. 26th, 1913).

Attached to Units other than Medical Units.—The undermentioned officers resign their commissions (dated Feb. 22nd, 1913): Captain James G. Miller and Lieutenant Alfred E. A. Carver.

For Attachment to Units other than Medical Units.—Alexander Kenneth Maclachlan to be Lieutenant (dated Jan. 3rd, 1913). Harold William Read (late Lieutenant, 8th (Isle of Wight Rifles, "Princess Beatrice's") Battalion, The Hampshire Regiment) to be Lieutenant (dated Feb. 26th, 1913).

DEATHS IN THE SERVICES.

Surgeon-General George Bidie, C.I.E., Honorary Surgeon to the King, on Feb. 19th, aged 83, at his residence, Barmore, Bridge of Allan. He served with the Madras Artillery and the 12th Lancers, and with the Hyderabad contingent during the Mutiny (medal and a good service pension). For some time he was professor of botany and materia medica, Madras Medical College, and in 1884–85 he was Deputy Surgeon-General, Burma. In 1885–86 he was Sanitary Commissioner, Madras Presidency, and was appointed Surgeon-General in 1886. He received the C.I.E. for the discovery of a preventive for an insect pest which threatened the extinction of the coffee plantations in Southern India.

THE GILBERT BLANE GOLD MEDAL.

The gold medal founded by the late Sir Gilbert Blane, Bart., to be given biennially, has been awarded by the Director-General of the Medical Department of the Navy and the Presidents of the Royal College of Physicians and the Royal College of Surgeons to Fleet-Surgeon Richard C. Munday for his Journal of H.M.S. *Hyacinth* for the year 1910, and to Fleet-Surgeon Edward Sutton for his Journal of H.M.S. *Highflyer*, Feb. 21st to Dec. 31st, 1911.

MEASLES AT OSBORNE COLLEGE.

The epidemic of measles which has broken out at the Royal Naval College, Osborne, is said to have been traced to a cadet who brought the infection to the college after home leave. There are about 100 cases. During the last four years there have been several serious outbreaks of illness at the college. In 1909 chicken-pox, in 1910 influenza, in 1911 three outbreaks of measles, and last year seven cases of scarlet fever.

NAVAL MEDICAL SCHOOL.

The Naval Medical School of the Royal Naval College, Greenwich, has been admitted as a school of the London University in the Faculty of Medicine for the officers of the Royal Naval Medical Corps.

SMALL-POX ON A BATTLESHIP.

Two cases of small-pox recently occurred on the battleship *Conqueror*, now stationed at Portsmouth.

FIRST LONDON DIVISION, R.A.M.C.(T.F.).

Major-General W. Fry, C.V.O., C.B., commanding the First London Division (T.F.), will open the new headquarters of the Royal Army Medical Corps of this division, which are situated at the Duke of York's Headquarters, Chelsea, S.W., on Saturday, March 1st (St. David's Day), at 8 P.M. The proceedings will be terminated with a smoking concert, at which Colonel F. Harper, A.D.M.S., 1st London Division, will preside.

A PRIZE ESSAY ON DIABETES.—The Society of Karlsbad Physicians announces a prize to be given for the best essay on "The Treatment of Diabetes Mellitus, with Special Reference to Balneotherapy." The jury will be Hofrat Professor Dr. Ritter v. Taksch, of Prague; Professor Dr. Luethje, of Kiel; Professor Dr. Ortner, of Vienna; Professor Dr. Schmidt, of Innsbruck; and Dr. Edgar Ganz, President of the Society of Karlsbad Physicians. It remains optional with the judges to award either one prize of 5000 kronen, or two prizes of 3500 kronen and 1500 kronen, or three prizes of 2500 kronen, 1500 kronen, and 1000 kronen. The competition is open to physicians of all countries. Any language may be used. The essays must be presented by Dec. 31st, 1913. Any further information may be obtained from the Society of Karlsbad Physicians in Karlsbad.

Correspondence.

"Audi alteram partem."

THE PANAMA CANAL AND MARITIME SANITATION.

To the Editor of THE LANCET.

SIR,—Whatever may be the confusion and the controversy among statesmen and men of commerce with regard to the political and commercial questions arising from the completion of the great interoceanic canal cut across the Panama Isthmus, the sanitary question is one quite clean-cut and clear. The day is rapidly approaching when civilisation will insist upon an uncontaminated maritime commerce. Highly civilised communities have suffered too much and too often from incursions of infectious and contagious diseases due to their commercial intercourse with less civilised peoples.

In most of the cities of the Western world preventive medicine has made great strides. Sanitary precautions are now taken to minimise the extension of communicable disease. Cleanliness of habitation and, to some extent, of person and clothing is insisted upon. Conditions friendly to the development of contagious and infectious ailments are reduced or removed. In these cities there is a noticeable and a constant declension of the mortality rate. Yet all the work that has been done and all the sanitary precautions that are taken may be set at naught at any time by a visitation due to commerce. Sanitary cities may suffer epidemics of bubonic plague, or Asiatic cholera, or yellow fever through an infection having its source in some remote Eastern or South American port. To prevent this, expensive quarantine services are organised and maintained, and a close supervision of commerce is exercised in the larger ports. Immediate inspection of vessels and their cargoes is not, however, the full measure of a port health officer's efficiency. The quarantine officer who is abreast of the times must be a sanitary strategist. He must have a vision for all the world. His part of civilisation's work is not alone the detection of infectious and contagious disease at his own port, but a study of the points where, and the means whereby, these plagues may be most advantageously combated. His duty constrains upon him vigilance for the protection not only of his port, but of all the ports with which his port is in commerce. An outbreak in London, or Liverpool, or Queenstown, or Hamburg, or Cherbourg, or Rotterdam of diseases with the epidemiology of cholera, yellow fever, or plague, should be to a New York health officer a matter of as much concern as the presence in his own harbour of ships with actual cases on board. Such an outbreak in any of the ports mentioned would, first, affect disastrously the commerce of his own port; and would, in the second place, offer as grave a menace to the public health of the City and State of New York as would the actual conditions indicated under his direct control and supervision. Commerce has so related us that all of us must be to some extent our brother's keeper. We cannot with safety to ourselves ignore the health conditions of other ports. We must, even if we eliminate the broader and loftier considerations of humanity and consult only the selfish consideration of our own immediate interest, protect one another.

There is no port health officer in any of the cities of the Western civilisation who can contemplate without concern the opening of the Panama Canal. It shortens the distance between the Far Eastern ports and the South American Pacific ports on one hand, and the Atlantic seaboard ports of Europe and America on the other. It will increase the commercial intercourse of all these ports. It will bring us closer by many miles and many days to those communities in which plague and cholera and yellow fever are endemic. From this direction, however, we shall not be apprehensive of cholera. Its brief incubatory period and the width of the Pacific combine to put an estoppel upon its extension from that direction. In future, as in the past, it will make its approaches to us in the shorter stages favoured by the geographical conditions of the old world. Plague, however, because of its peculiar agencies of transmission, and yellow fever for the same reason, must be vigorously and vigilantly guarded against. The latter malady is endemic in the South American ports, as it was in the West Indian ports and in the Central American and Isthmian States prior to the sanitary activity in those islands and States of American medical officers. By the opening of the Panama Canal our western coast will again be exposed to the danger of infection.

Political conditions place the sovereignty over the Canal Zone in the hands of the American Republic. Back of all smaller questions now in controversy is the broad and high understanding of all the world, that this sovereignty is not to be exercised for a selfish or a national benefit, but for civilisation at large. There can be no controversy then as to what are the obligations of the American Republic in the premises. No student of the history of this stupendous undertaking, from that remote day in the sixteenth century when Charles V. had a survey made for a canal from the Chagres river to the Pacific up to the present hour, can escape a realisation of the tremendous part that sanitation has played in the successful execution of the project. Nor can any man, and particularly any physician, consider the future of the great waterway without a realisation of the vast possibility of sanitary service open here to the United States. To meet the dangers which I have indicated, to control disease at this focal point of commerce, the American Government should establish a world quarantine. Sanitary science has the right to demand this of the Government of the United States. Political conditions make it possible to demand it of no other Power. Sanitary science can truthfully say that without its help this Canal would never have been constructed; that with its help the Spanish or the French could have constructed it long ago. Without subtracting one iota from the credit due to the splendid engineering ability displayed in this work, we have a right in justice to demand full credit for our profession for the industry and the high scientific intelligence of the medical men who cleared the field for the engineering forces. Through them it was possible for men to live on the Isthmus, and until that had been accomplished the work of excavation and construction was impossible. They cleared up the swamps, they banished the yellow fever, the typhoid, and the malignant malarial fevers. A dozen years ago a traveller from Colon to Panama would traverse a country clouded with swarming insects. When I was in Panama last December I traversed this very zone without seeing any mosquitoes. By right of service, then, the science that has done this may justly demand, in the name of civilisation, a course on the part of the Government in control to which considerations of pure humanity, on the one hand, and self-protection on the other, combine to direct it.

Physical conditions at the Canal are almost ideal for the establishment of such a quarantine as I have suggested. It will take 12 hours for a vessel to make the voyage from one end of the waterway to the other. These 12 hours can be utilised for inspection and disinfection and fumigation where necessary without undue interference with the natural flow of commerce. A boarding station should be established at each end of the Canal, and fumigating boats should be so stationed as to enable them to accompany on the trip such vessels as would require fumigation. At the Colon end of the Canal there should be a temporary reception hospital. At the Panama end there are groups of islands, and two islands, Flamenco and Perico, are admirably situated for use as sites for detention pavilions and contagious disease hospitals. Isolation wards and detention pavilions should be constructed on those islands. The entire quarantine establishment should be conducted by the United States Public Health Service.

The effect of such an establishment would be felt all over the world. By a public health intelligence system port medical officers all over the world could be apprised of sanitary conditions on ships bound for their harbours. In addition to that the certainty of supervision and the possibility of delay would indirectly stimulate sanitary activity upon the part of vessel owners and steamship agents at ports of departure. A reflex influence would impel to a highly desirable sanitary activity the authorities of western South American cities whose ports are now a source of danger. In every direction the world would feel the sanitary benefit.—I am, Sir, yours faithfully,

JOSEPH J. O'CONNELL, A.M., M.D.,
New York, Feb. 11th, 1913. Health Officer, Port of New York.

JUDICIAL HANGING.

To the Editor of THE LANCET.

SIR,—Your having done me the honour of publishing my letter on the above subject in THE LANCET of Jan. 18th makes it, I feel, incumbent on me to enter more fully into it, and especially into the evidence brought before Lord Aberdare's Capital Sentences Committee 27 years ago, and the extraordinary recommendations of that committee. The admission of the subject of "judicial hanging" to the pages of THE LANCET is proof of its suitability for discussion by the medical profession, from whose ranks alone can arbitrators be provided.

As Dr. F. Wood-Jones points out in his article published by you on Jan. 4th, "For a long while the facts here mentioned" (proving the efficacy of the submental knot) "have been known in an indefinite way. The submental knot was strongly advocated to, and apparently approved by, the Committee on Capital Sentences in 1886, but it was not made a recommendation in its resolutions." That committee seems to have been alone influenced by the evidence of Dr. (now Sir) James Barr, then Kirkdale prison medical officer, who advocated the long drop with the subaural knot, relying alone on "the energy of the fall as the chief factor"—i.e., on clumsy, uncertain, brute force. The adoption of this system might have been justified if it had been shown that the lesions produced in a number of executions were similar, but Dr. Barr's own evidence (Report, paras. 759, 760, and 761, p. 28) on his 15 post-mortem examinations at Kirkdale says "the injuries vary very much, dislocations having been found"

Table of 15 Executions at Kirkdale Prison, 1883–1886.

No.	Weight.		Drop energy.		Result.
	st. lb.	lb.	ft. in.	ft. lb.	
1	11 4	158	7 0	1106	Asphyxia.
2	9 8	134	7 5½	1001	,,
3	10 2	142	7 8	1082	,,
4	11 3	157	7 11½	1246	Dislocation.
5	11 4	158	8 0	1264	,,
6	10 4	144	9 2	1320	,,
7	8 6	118	9 6	1121	,,
8	11 1	155	8 7½	1336	,,
9	9 4	130	9 3	1202	,,
10	10 2	142	9 3	1313	,,
11	10 4	144	9 6	1368	,,
12	8 6	118	10 9	1268	,,
13	9 4	130	11 0½	1438	,,
14	9 5	131	10 8½	1402	,,
15	9 4	130	8 9	1139	,,

Scale of Drops Laid Down by Lord Aberdare's Committee.

Weight of culprit.		Drop.	Energy developed.
st.	lb.	ft. in.	ft. lb.
7	98	11 5	1119
8	112	10 0	1120
9	126	9 6	1197
10	140	9 0	1260
11	154	8 2	1258
12	168	7 6	1260
13	182	6 11	1259
14	196	6 5	1258
15	210	6 0	1260
16	224	5 7	1251
17	238	5 3	1250
18	252	5 0	1260
19	266	4 8	1241
20	280	4 6	1260

more frequently between the second and third vertebræ, and as low down as between the fifth and sixth, while he found "fractures of the transverse processes of the second, third, fourth, and fifth, of the odontoid process, of the body of the axis and of the arch."

What a contrast to the uniformity of lesion produced by the submental knot in Captain C. F. Fraser's cases, quoted in Dr. Wood-Jones's paper. But less illuminating still are the figures relating to the allotment of the Kirkdale drops, for it will be noticed in the subjoined list of executions there (Report, paras. 607–620, p. 23) that there are three culprits of 130 lb. weight, one of whom got 9 ft. 3 in., another 11 ft. 0½ in., and a third, 8 ft. 9 in., one of 131 lb. getting 10 ft. 8½ in., while a drop of 9 ft. 6 in. was impartially given to one of 118 lb. and to another of 144 lb.—another 118 lb. man getting 10 ft. 9 in. Dr. Barr stated (para. 621) that the executioner was responsible for these drops.

I shall now, with your permission, give a few brief extracts from reports in the *Standard* of executions since the committee laid down the foregoing drops to show that the rules were never adhered to. In three reports the weights were not given, but in only one case out of the ten has the drop exceeded 7 ft., the average being 6 ft. 9 in., and the average "foot-poundage" for the seven whose weights were given is 932½ or (as I stated in my former letter) about three-quarters of that laid down—viz., 1260.[1]

1. Joseph Morley, Nov. 20th, 1887. Springfield Prison, Chelmsford; Berry the hangman. "Quite a lad," height, 5 ft.; weight, 8 st. (112 lb.); drop, 7 ft.; energy developed, 784 ft. lb. "Death instantaneous."

2. Robert Upton, July 18th, 1888. Oxford Gaol; Berry. Age, 61; weight not stated; drop, 7 ft.; nearly decapitated. "Berry had given a drop of 5 ft., but it looked more after the drop. The prison officials and reporters then heard a splashing sound and looking into the cavity they saw that the shock of the fall had torn the flesh of the culprit's neck from which blood had poured into the pit below and splashed on the side of the scaffolding." "One who was present" wrote to the *Daily Telegraph*: "The doctor on the best data swore at the inquest that he was convinced that the drop was 7 ft. instead of 5. I am in a position to say that this is the general opinion of all those present most likely to know, and this opinion is quite unaffected by Berry's oath to the contrary."

3. Ebenezer Jenkins, March 6th, 1889. Wandsworth; Berry. Age, 20; weight, not stated; drop, 6 ft. 6 in. At the inquest "Dr. Quinton stated that the convict was such a spare youth that it was necessary to put a 7 lb. weight on each of his feet." "Appeared to die instantly."

4. Frederick Davis, August 26th, 1890. Birmingham; Berry. Weight, 10 st. (140 lb.); drop, 6 ft. 6 in.; energy, 910 ft. lb. "At the inquest on the body it was stated that there was a shocking gash in the man's throat, severing the windpipe and blood-vessels. In fact, the culprit's head had been nearly pulled off."

5. James Harrison, August 26th, 1890. Leeds; Billington executioner. Age, 40; weight, not stated; drop, 6 ft. 2 in. "Died without a struggle."

6. Thomas Macdonald, Dec. 30th, 1890. Kirkdale Prison, Liverpool; Berry. Age, 34; weight, 8 st. 10 lb. (122 lb.); drop, 9 ft. 2 in.; energy, 1096 ft. lb. "The length of the drop fixed was 8 ft., but the actual drop as registered was 9 ft. 2 in. The execution was stated by Dr. Barr to have been the quickest ever known."

7. John Conway, August 20th, 1891. Kirkdale Prison, Liverpool; Berry. Weight, 11 st. 2 lb. (156 lb.); drop, 6 ft.; energy, 936 ft. lb. "The blood from the dead man's body was heard streaming on to the floor of the pit. It was then seen that the condemned man's head had been almost torn from his body, and was hanging merely by the muscles of the neck." Berry is stated to have afterwards said to the reporters, "They would have given him another 8 in. drop but for me. I would not have given him above 4 ft. 6 in." At the inquest "Dr. Barr said there was no hitch in the execution, and the usual verdict was returned, no reference being made to the horrible scene in the pit." The Central News says: "The publication of the painful details connected with the execution of Conway has caused a feeling of horror in the city. On all hands expressions are heard that the cause of the bungling ought to be fully inquired into. Speaking to Berry a few minutes afterwards, a reporter said, 'You have made a mess of it this time, Mr. Berry.' 'Not I,' replied the hangman; 'I am not to blame for anything that has occurred; all is left to the doctor now, and this comes of not taking my advice.'"

8. Albert Milsom, June 9th, 1896. Newgate Prison, London; Billington. Age, 33; weight, 9 st. 12 lb. (138 lb.); drop, 6 ft. 9 in.; energy, 931½ ft. lb.

9. Henry Fowler, June 9th, 1896. Newgate, London; Billington. Age, 31; weight, 11 st. 2 lb. (156 lb.); drop, 6 ft.; energy, 936 ft. lb.

10. William Seaman, June 9th, 1896. Newgate; Billington. Age, 46; weight, 9 t. 12 lb. (138 lb.); drop, 6 ft. 9 in.; energy, 931½ ft. lb.

Of these three simultaneous executions it was reported "Except a twitching of the ropes, by reason of the weight suspended from them, there was no indication that life was left in the culprits after the fall. The medical officers (Dr. Pitcairn and Dr. Scott) at once descended the pit and reported that death had been instantaneous." The report also stated that in Fowler's case the knot had been placed "under the chin" (?). For fuller information may I refer your readers to the original letters of mine with illustration in the *British Medical Journal* of Oct. 6th, 1888, and following numbers.

I think I have shown by the facts stated in this letter the

[1] I will send these newspaper cuttings gummed into a book to THE LANCET Office.

absolute uncertainty of the present system (or want of system) in hanging criminals with a long drop and subaural knot, and also the uncertainty as to whom the responsibility belongs, prison surgeon or hangman. That the latter should have any voice in the matter seems preposterous, as also that such an official should exist in the twentieth century. The reports of "instantaneous death" at executions in conjunction with "muscular twitchings" or movements of any kind, carry no conviction to me, for, if I learned one thing definitely, it was that the body of a hanged culprit rendered really insensible by injury to the brain or spinal cord makes no movement whatever. The barbarous act of launching a human being into space with 6 ft. to 10 ft. of slack rope attached to the neck by a constricting noose *must* result in uncertainty, even without the chances of degeneracy of tissues from disease or old age. I but advocate the principle of "Arte non Vi," the motto of my old hospital in the Coombe, Dublin, and other surgeons, far more scientific than I pretend to be, are already confident that my chin-trough concentrates the deadliness of the submental knot by keeping the ascending rope on the point of the chin to deliver its blow there.

There need be no fear as to the time occupied, for I have often gone through the whole process on a model and had the time accurately taken, the results being a shade under that taken by Berry in ordinary cases. I believe that between 3 ft. and 4 ft. will be sufficient drop, with the trough, for a culprit of any weight, so that the operation will be sure and simple—capable of being easily taught to, and practised by, intelligent prison warders, who could travel to the different prisons. I should add that an opportunity for testing the trough has now been afforded me, and I hope soon to prove all I claim for it.—I am, Sir, yours faithfully,

JOHN J. DE ZOUCHE MARSHALL, L.R.C.S. Irel. &c.,
Lieutenant-Colonel, R.A.M.C. (T.) (retired).

Thames Ditton, S.W., Feb. 13th, 1913.

WHEN TO OPERATE IN APPENDICITIS.

To the Editor of THE LANCET.

SIR,—It was a matter of disappointment to me that I was unable to be present at the meeting of the Medical Society of London on Feb. 10th and speak in the debate on Mr. Edmund Owen's paper which raised the question as to whether the best results in the treatment of appendicitis can be obtained in the greatest number of cases by immediate operation or by temporising. As you kindly alluded to my absence from the meeting in your leading article on Mr. Owen's paper, I write to say what I would have said had I been present, and that is—that no satisfactory discussion on this important question can take place until there is a distinct definition given of the word "immediate." Does it mean operation whenever the patient is seen, no matter what the stage of the malady, or operation done within a few hours of the onset of the attack? I have read and re-read Mr. Owen's paper, and nowhere is this very essential point made clear. Nor is any assistance given by the wording of the question itself, for it is so framed that anyone reading it would think that all cases of appendicitis are seen at the very beginning of the illness, the fact being that they are not. With "early operation"—that is, within a few hours of the commencement of the malady—no fault as regards mortality can be found; but against "immediate operation"—that is, whenever the patient is seen, no matter what the period of the illness—a very great deal can be said, as it is, in my opinion, the adoption of this line of practice that is responsible for the unfortunately high mortality in the surgical treatment of appendicitis.—I am, Sir, yours faithfully,

Glasgow, Feb. 22nd, 1913. GEORGE THOS. BEATSON.

MAGNESIUM INFILTRATION AND CHOREA.

To the Editor of THE LANCET.

SIR,—While it is discourteous to criticise the critic, the natural Scotch combativeness prompts me to say a word on the subject of magnesium infiltration and chorea, these topics being found in juxtaposition in your popular journal of Jan. 25th, p. 259. The following quotation will make the subject plain to the reader:—

> The way in which the magnesium acts is as an insulator, the nerve becoming electro-plated with magnesium oxide. Hence the normal nerve stimuli are inhibited and the tissues are coincidently affected so that they cannot do their proper work, whereupon a diseased condition follows. ..... It follows upon this reasoning that the main line of treatment in all diseases is to neutralise acid excess and promote magnesium dissociation.

We have no better illustration of the effects of magnesium than in the case of Sydenham's chorea (chorea minor); it is typical of the derangement in function which borders upon organic disease. In fact, as the critic remarks:—

> It has long been recognised that there are certain features in the disease, apart from its association with rheumatism, which suggest an organic basis for the affection.

For all practical purposes this preliminary analysis covers the entire subject, when it can be shown that the magnesium deposits are due to a chemic deviation in the body fluids, and, further, that they will disappear upon neutralising this chemic deviation (acid excess), when combined with the necessary lime salts to recoup the tissues. Stated briefly, physical growth in both animal and plant life tends to an over-production of acid, and during childhood this acid excess depletes the lime, magnesium taking its place, a clinical fact which may be readily demonstrated. For example, if you take a child subject to chorea, and supply that patient with lime in excess—say, calcium phosphate—the choreic symptoms will begin to subside in the course of a few days, and perfect recovery will ensue without any untoward manifestations. I should add here that calcium phosphate should be given in the form of a normal trituration, equal parts of the remedy combined with sugar of milk, and the same should be thoroughly mixed by machinery.

In explanation of this somewhat fanciful proposition it should be stated that while acid excess interferes with the absorption of lime salts as they occur in the food, the artificial or medicinal administration of lime is not contra-indicated. The average daily intake of lime for adults ranges from 10½ to 15 grains, and in the case of a child 10 years of age it can be given without danger, say 10 grains of the proposed trituration three times daily, the equivalent of 5 grains calcium phosphate three times a day. It would not be difficult for any physician to obtain this medicament in the form described, and it would be perfectly safe to administer this treatment for at least a week on trial, and I feel confident that the results will prove a revelation to the medical attendant.—I am, Sir, yours faithfully,

Philadelphia, Feb. 4th, 1913. JOHN AULDE, M.D.

WEISMANN AND LAMARCKISM.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Licorish's interesting remarks on Lamarckism *versus* Weismannism in your issue of Feb. 22nd, may I say a few words on the subject, as I am also one of those who have never been able to reconcile themselves to a dogmatic faith in Weismannism?

When studying the literature on heredity we cannot help being struck by the uncompromising attitude taken up by English biologists on the subject, as compared to the much more cautious one of the Continental and American biologists. The Neo-Darwinians seem to deny the transmission of acquired characters simply on account of Nussbaum's discovery of the continuity of the germ-plasm, without attempting in any way to show why the germ-plasm should be inviolable to influences during life, although the contrary is what every student of physiology would logically expect.

To prove hereditary variations exclusively by means of natural selection it is necessary to have recourse to metaphysics, which is not admissible in science. There is, I believe, at present a school of heredity in Vienna that is working hard to prove the transmission of acquired characters. Let us hope that they will soon be successful, so as to put a stop for ever to this—from a eugenic point of view—most dangerous dogmatism. Meanwhile, may I make a humble suggestion?

On looking at the section of a seminiferous tubule with fully developed spermatozoa and at the section of a Graafian follicle containing a ripe ovum, we see these germ cells surrounded by a great number of small round cells, indistinguishable from leucocytes. In the case of the ovary these form the so-called "membrana granulosa." What may be the function of these cells? They cannot all be carriers of

nutriment, because their number is so great that their combined bulk would be much greater than the germ cells they are supposed to provide with nourishment. They look for all the world like so many messengers, anxious to deliver their messages to the germ cells. Is it not just possible that these cells, so sensitive and active and so vital in many other respects to our economy, may also be the carriers of acquired modifications? Were it so, it would explain why the mere hypertrophy of an organ from use would not be inherited, as this is a mere quantitative change, not a qualitative. And also why mutilations are not inherited, as in this case no message could be expected from an organ that no longer existed.

We must remember that the nerves are not the only transmitters of impulse in animals. This has been proved by Popielski, Wertheimer, and Le Page, who have shown that a flow of pancreatic juice can be induced by introducing acid into the duodenum, even when the nerves supplying the duodenum and pancreas have been cut through. These experiments have been repeated by Starling and Bayliss, who consider that the secretion cannot be reflex, since it occurs after the extirpation of the solar plexus as well as the nerves. "It must therefore be due to direct excitation of the pancreatic cells, by a substance conveyed to the gland from the bowel by the blood-stream. *So many of the connexions between organs are made by nerves that we are apt to forget the other messenger, the blood.*" (Halliburton's "Physiology," tenth edition, p. 517.) We know that there are several varieties of leucocytes, and this must imply different functions. But we know very little of their origin. It would be interesting to know what resemblance the various varieties show to the original germ plasm on the supposition that some of them may be near relatives who circulate in the blood for the express purpose of collecting and conveying acquired modifications to the developed germ cells.

I am, Sir, yours faithfully,

GERDA B. JACOBI.

Tavistock-place, London, W.C., Feb. 24th, 1913.

THE STATISTICS OF OPERATION FOR APPENDICITIS.

To the Editor of THE LANCET.

SIR,—May I correct a slight error in your report of my remarks at the meeting of the Medical Society of London on Feb. 10th? I was speaking of my own statistics, not those of the whole of St. George's Hospital. I append a table of my results there during the last four years.

I am, Sir, yours faithfully,

Half Moon-street, Piccadilly Feb. 21st, 1913. G. R. TURNER.

A.D.	Cases.	Drainage.	Deaths.
1909	42	22	0
1910	43	20	2
1911	30	11	1
1912 (up to date)	49	30	0
	164	83	3 = 1·8 % mortality.

144 acute cases. Tube and gauze used in 83. 3 deaths = 2·07 per cent. mortality.

Last *63* cases without a death. One death in *last 100 cases*. No death in *last 50 acute cases*.

Analysis of cases of death.—1. *One* from intestinal obstruction ten days after operation; operated on by another surgeon. This was not a drainage case. The wound was healed, and patient apparently well. 2. General septic peritonitis present on admission before and after operation. 3. Fatal peritonitis followed removal of gauze in a case doing well up to this time.

THE MORTALITY OF THE ABDOMINO-PERINEAL OPERATION FOR RECTAL CANCER

To the Editor of THE LANCET.

SIR,—I have read with interest Mr. Leonard Ley's letter in THE LANCET of Feb. 22nd, p. 563, in which he advocates, as a routine, a preliminary colostomy for a fortnight before excision, with a view to reducing the mortality from sepsis of the abdomino-perineal operation. I agree with him that this course is advisable in certain cases in which the colon cannot be satisfactorily cleansed before operation (the semi-obstruction type). In the majority of cases which are suitable for the combined operation there is no difficulty in thoroughly cleansing the bowel by means of enemata. Cases in which there is any tendency to obstruction will, when explored, usually be found unsuitable for the major operation, although operation may become possible after the establishment of a colostomy.

The establishment of a preliminary colostomy possesses certain disadvantages: (1) the presence of an artificial anus in the abdominal wall will render sterilisation of the skin a matter of uncertainty, and adds an additional risk of sepsis to the operation; (2) the existence of an inguinal colostomy, so far from shortening the operation, tends to prolong it, renders it more difficult, and adds to the risk of infecting the peritoneal cavity during division of the bowel within the abdomen.

In performing the combined operation the pelvic colon is divided outside the abdomen. This portion of the operation with closure of the ends can be completed very quickly, and the time spent in bringing out the upper end through the inguinal region is less than that spent in dividing and closing the bowel within the abdomen when a colostomy is already in existence. Furthermore, when the colostomy has been previously performed, adhesions may occur which complicate and prolong the second stage of the operation. I have been in the habit of keeping patients in bed for at least a week prior to operation. During this period copious enemas are given daily, and naphthalene tetrachloride is given internally as an intestinal disinfectant. In a few cases I have given prophylactic doses of a coli vaccine prepared from the patient's fæces two or three days prior to the operation.

I believe that in operating on suitable cases with moveable growths careful preliminary treatment followed by operation in one stage is preferable to a two-stage operation, because it enables the operation to be conducted on more aseptic lines and with less difficulty. If the case is considered suitable for the major operation, but symptoms of toxic absorption or fæcal accumulation exist and do not clear up by preliminary treatment as laid down, then appendicostomy, followed by irrigation from above and below, should be employed rather than inguinal colostomy. Preliminary colostomy should, in my opinion, be reserved for cases which manifest signs of partial obstruction. The high immediate mortality of the operation in suitable cases is due in the main to two causes, shock and sepsis. Severe shock can best be avoided by rapid operation, a preliminary dose of morphia and atropine, and the use of oxygen passed through warm alcohol during chloroform anæsthesia, followed by continuous saline infusion either *viâ* the colostomy wound or subcutaneously. Sepsis can only be avoided by scrupulous care and experience in the details of the technique. Another factor in the high mortality of the operation is the selection of unsuitable cases for the major operation—e.g., stout patients over 60 (especially males) and patients with growths which have passed the confines of the bowel wall.

The mortality of the operation is rapidly improving in individual hands with increase of experience. Wertheim's operation for cancer of the uterus when first practised by gynæcologists suffered a far higher mortality than it does at the present day. *Ceteris paribus*, the most important factor of all is experience.—I am, Sir, yours faithfully,

London, W., Feb. 24th, 1913. C. GORDON WATSON.

THE DIVERSE CONSEQUENCES OF ORAL SEPSIS AND ITS TREATMENT.

To the Editor of THE LANCET.

SIR,—Oral sepsis is now commonly recognised, but as the symptoms are very varied, I should like to bring forward in your correspondence pages certain points whose further discussion might be useful. The following cases occurring in my own practice have presented such different symptoms that a very great diversity of feature must be common.

1. A woman, aged 40, developed a swelling of the right ankle-joint, dark red and shiny and extremely painful. After this cleared up four or five patches appeared on the legs about the size of half a crown, and appeared identical with erythema nodosum. Then an almost agonising pain between the shoulders, then extreme pain in the right knee, but no swelling. All these appeared over a period of three months, at the end of which time the patient was agreeable

to undergo any treatment for relief, and so she consented to have all her teeth out as her gums were very septic. She soon regained perfect health and looked years younger.

2. A woman aged 56. I found the arms, hands, and legs covered with cutaneous hæmorrhages, some as large as a shilling. She was very anæmic, had hæmoglobinuria, and her very septic gums were continually bleeding. All her teeth were extracted at a hospital and she nearly succumbed to hæmorrhage afterwards, but when I saw her three months later she was apparently quite well and with a good colour.

3. Male, aged 40. When I saw him he could not move his left arm owing to very severe pain. He had a very septic condition of his gums but would not consent to extraction of the teeth. He went back to work after eight weeks' treatment, but had recurrent attacks of similar pain but not so severe. About a year after his first attack he suffered from loss of memory for five days, followed by prostration for three weeks, but whether this was due to the pyorrhœa or not, I do not know. He was a non-smoker and he told me that friends of his who had had pains similar to his were also non-smokers and had septic gums such as he had.

4. Male, aged 55, had frequent recurrent attacks of agonising pain in the left lumbar region, needing morphia injections; he was X rayed but no stone could be seen. By my advice he had all his teeth removed as his gums were exceedingly septic. He lost all the pain and his anæmia from which he also suffered.

5. Male, aged 60, had continual pain and tenderness on pressure over the duodenum, severe paroxysms of coughing and retching every night, unable to work, no appetite, very depressed, and contemplated suicide. After eight months at home he agreed to have his mouth cleared of septic stumps. Now, three months after, he can enjoy his food, the duodenal pain is gone, sleep is undisturbed, and he says he feels well.

I have under treatment now two patients completely invalided by "rheumatism," who will not, I believe, get any better until they agree to have their teeth seen to. I have had a large number of cases during the last 15 years, and find that the men with this disease are non-smokers, or practically so. The variety of symptoms is, I think, an interesting point, and should form quite a long list in the books on medicine.—I am, Sir, yours faithfully,

Stock, Ingatesone. HERBERT CARDIN.

PSYCHOLOGY: A NEW SYSTEM.

To the Editor of THE LANCET.

SIR,—I have always been prepared for hostility, for the man who in the realm of philosophy seeks truth, and truth only, is sure to find the big battalions against him. Moreover, although the cry for originality is heard, what is really hoped for is something daring within safe and orthodox lines—an originality which arises in the very mode of treatment disconcerts the conventional mind, and resentment of what is new and strange finds even intellectual expression in the desire to "'eave 'arf-a-brick at 'im." And so the popular conscience is vindicated.

Such has been the history of criticism in this country, for I would ask you how many instances you can point to of great works of thought which have not been assailed by the malice of the orthodox or covered by the derision of imbeciles. Nevertheless, I confess I was surprised to read in THE LANCET of Feb. 22nd, p. 540, a review so inept as that which dealt with my "Psychology." I will not further refer to the writer; but after having deliberately abandoned old landmarks, after having toiled in preparation through realms more extensive at least than ever entered upon by any thinker before, and after having established a system which a brilliant Italian psychologist declared to be striking in its entire originality and scope, possibly I may be allowed to say a few words, less in the way of rebutting a foolish criticism than in the desire to indicate the true purport of the book. Out of a hundred possible illustrations I will select one which touches on our own profession. Thus, in regard to localisation there was no principle in physiology held with greater certitude than that which referred aphasia to Broca's lobe. Throughout all the universities and medical schools of the world this doctrine was given with authority, and indeed with that manner, so common in universities and so fatal to progress, of discouraging investigations of orthodox teachings.

My analysis, on the psychological side, of aphasia led me to the conclusion not only that the doctrine of Broca's lobe was untenable, but that the whole theory on which researches in localisation had been conducted was fallacious. In this light I re-examined the work of many—Ferrier, Munk, Goltz, &c.—whose reputations had been built on expositions of the functions of the brain, and I showed not only that there was no concordance of the authorities amongst themselves, but that when they overstepped into the psychological realm their deductions from observations were unwarranted and contradictory. Broca's conclusions are now overthrown, as those who are interested may discover in Moutier's imposing volumes. And this result I am able to quote in confirmation of my analysis; but that analysis is none the less necessary now, since the same incomprehension of the mechanism of thought that allowed too facile acceptance of Broca's dictum will lead to discrediting what is valid in his work.

I am entitled to ask whether, in the whole range of psychology, you can show me a work which can claim anything analogous to this criticism of localisation. Viewed, however, in regard to the intention of the work, this result occupies in the perspective a place of no special importance. It is only one out of innumerable conclusions which arise by way of corollaries in the course of the exposition, and which will eventually be found to interest all branches of science and to throw light on the mode of their development. The investigation of the foundations of mathematics is, on the other hand, an integral part of the book, for this study has been essential in order to ensure rigour in the proofs I have given of the completeness and of the necessity of the fundamental processes.

The pith of the matter consists in the enunciation of these fundamental processes, the illustrations of the modes of their combinations, and the demonstration that by such syntheses the whole range of mental action—in regard to any psychic act whatever—may be expressed. Only two philosophers have hitherto definitely posed the main problem of psychology as I have conceived it—Aristotle and Kant. I have shown, in the course of the analysis, not only that their systems were wrongly based, but also I have pointed out exactly wherein they failed, and I have indicated the origin of their faults. I am making a plea now not merely for myself but for the science itself, which has ever fascinated me, and which, as I apprehend it, is destined to rise as from a new birth and to offer new illumination throughout the world of human thought.

I am, Sir, yours faithfully,

St. Ives, Cornwall, Feb. 24th, 1913. ARTHUR LYNCH.

EPILEPSY AND DEMENTIA.

To the Editor of THE LANCET.

SIR,—Inasmuch as Dr. W. Alexander, of Liverpool, in a paper entitled "Necessity of a Better Classification of Epileptics" published in THE LANCET of Jan. 25th, 1913, p. 263, questions my statement, "Epilepsy is a disorder leading to dementia," I desire to call attention to the admission Dr. Alexander makes in the same paragraph, "that sane epileptics do not tend to dementia to any serious extent."

It has been my privilege to have closely observed over 3000 epileptics during the past 12 years, during which period I have resided in the Craig Colony for Epileptics. From this experience I have arrived at the conclusion that the epileptic who does not show some evidence of mental deterioration is the exception that proves the rule. Furthermore, it is exceedingly difficult, if not impossible, in many cases of epilepsy to draw the line between sanity and insanity. A careful examination of the mental state of epileptics in the various institutions for their special care will show but a very small number who would be called normal or even approaching normal, mentally.

If it be true, as a great proportion of those experienced in the care of epileptics believe, epilepsy is a condition due in part to, and resulting in, permanent destructive changes in the brain, what could one look for to accompany the other symptoms but a mental impairment, more or less progressive in nature? One must remember that in any condition in which mental deterioration occurs that there are various degrees of impairment and also periods during which this deterioration is apparently in abeyance, such periods lasting for perhaps many years. My statement that "Epilepsy is a

disorder leading to dementia," did not imply that all epileptics became profoundly demented; the statement as used included all degrees from the slightest to the most marked mental deterioration.

I agree with Dr. Alexander that everything that occurs in an epileptic is not the result of epilepsy nor a symptom of epilepsy, as some seem to think, and that the question of equivalents of seizures is by some writers overdrawn. There is an opportunity for difference of opinion as to what is the most characteristic phenomenon of epilepsy. In my paper referred to by Dr. Alexander I stated: "An essential feature of the true epileptic seizure is supposed to be sudden loss or impairment of consciousness. This condition recurring at varying intervals in those having genuine epilepsy." I also stated: "Each case must be studied with great care, and all the symptoms considered before a positive diagnosis can be arrived at." "The progressive mental deterioration observed in epileptics is as common a symptom as are the recurring seizures. This is due to the atrophic changes in the essential cells of the cortex, what one would expect in an organic disorder of this nature."

Since shortly after the founding of the Craig Colony for Epileptics school work has been successfully carried on for our younger colonists, it is our experience that a considerable number thus receiving instruction can be taught the ordinary branches as well as the manual work. For our patients whose mental condition permits them to make use of it there is a library of over 2500 volumes. We have found, as had Dr. Alexander, that the male patients seem as a rule to be more fond of reading than do the female patients.

I am sending under separate cover a reprint of the article referred to by Dr. Alexander in his paper, and I am also sending Dr. Alexander a copy of this letter.

I am, Sir, yours faithfully,

WILLIAM T. SHANAHAN,

Medical Superintendent, Craig Colony for Epileptics.

Sonyea, N.Y., Feb. 13th, 1913.

TREATMENT OF BOILS, CARBUNCLES, &c., BY SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 22nd, p. 562, in my letter on this subject, will you let me draw attention to a slip? The sentence should run, "by the internal administration of *dilute* sulphuric acid," not of "sulphuric acid."

I am, Sir, yours faithfully,

Rickmansworth, Herts, Feb. 25th, 1913. F. S. D. HOGG.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—It is to my mind perfectly sure that the trouble is not really all over, and those who think that certain metropolitan districts are the only ones where discontent is reigning are profoundly mistaken. I think there may still be a contest before us to obtain amendments—not any amendment to satisfy promises already made of modifications, but real amending legislation—and I therefore think it well that we should be getting ready.—I am, Sir, yours faithfully.

Feb. 25th, 1913. A MINOR PROPHET.

COAL GAS AS A FUEL FOR DOMESTIC PURPOSES.—Two lectures on this subject will be delivered at the Royal Society of Arts by Mr Francis William Goodenough on Mondays, March 3rd and 10th, at 8 P.M. In the first lecture Mr. Goodenough will deal with the substitution of gaseous for solid fuel in the home considered from the points of view of (*a*) public health; (*b*) of personal health and comfort; and (*c*) of domestic economics and labour-saving. He will also discuss the relation of heating to ventilation. The second lecture will be devoted to the question of gas for cooking purposes, and hot-water supply, and the miscellaneous domestic applications of gas.

TRIENNIAL CONFERENCE OF THE CHINA MEDICAL MISSIONARY SOCIETY.

(FROM OUR OWN CORRESPONDENT.)

IN China the medical missionary is a force in the land. He brings Western medicine into direct contact with the masses, and is able in return to gain a large and varied clinical experience. The Conference which has just finished sitting in Peking has been very successful. Interesting papers, the outcome of patient work, were read, and a great part of each day was taken up with the many knotty points concerning medical education. There is a large scheme on hand to elaborate the existing medical missionary schools and to establish others at "strategic" points.

The Conference received from the Chinese Government plentiful recognition of the esteem in which its members are held. President YUAN-SHIH-KAI gave them a reception, and speaking in reply to the address presented to him warmly eulogised their medical services to China, notably at the time of the pneumonic plague epidemic and in Red Cross work during the revolution. The Chinese Foreign Office also gave a reception, to which the leading members of the community, Chinese and foreign, were invited to meet the doctors. The Conference will be held biennially in future. The following is a *résumé* of some of the papers read:—

Dr. G. DUNCAN WHYTE, of Swatow, contributed a paper entitled,

The Treatment of an Epidemic of Cholera by Rogers's Method.

This was based on a study of 215 cases which were treated with infusion of hypertonic saline solution. The technique devised by Rogers was followed with but slight modification. For instance, in estimating the specific gravity of blood, instead of using a number of bottles containing mixtures of glycerine and water of different strengths, Dr. Whyte found it necessary to employ only two mixtures, representing the specific gravity of 1062 and 1066 respectively; and in place of glycerine and water he preferred a mixture of castor- or olive-oil with oil of wintergreen. Administration by the mouth of permanganates in order to destroy toxins in the gastro-intestinal tract, as recommended by Rogers, was abandoned after giving unfavourable results in several cases. Experience gathered during the epidemic proved the extreme simplicity of Rogers's method and its suitability for dealing with such an emergency. Its efficiency was shown by the fact that of the 215 cases treated 70 per cent. recovered. Of the 65 fatal cases death was found to be due chiefly to three causes—viz., collapse, hyperpyrexia, and uræmia. In dealing with the first of these, Dr. Whyte urged the importance of frequently estimating the systolic blood pressure and of giving intravenous saline infusion directly this falls to a dangerous level. He referred to the value of adding to the infusion vaso-constrictors, such as pituitary extract and adrenalin chloride. About half the number of deaths was due to hyperpyrexia. Experience taught that in taking prophylactic measures against this condition the temperature of the infusion must vary with that of the patient, and that the rate of inflow of the saline must be slower in children and in those over 40 than in young adults. Further, that the amount of fluid introduced must depend not only on the measured specific gravity of the blood, but also on the sex, age, and weight of the individual patient. In counteracting hyperpyrexia iced enemata gave good results.

Three Diseases of Obscure Parasitic Causation.

A paper by Dr. JAMES L. MAXWELL, of Tainan, Formosa, dealt with three diseases of which the parasitic causes are obscure—viz., febrile tropical splenomegaly, fistulous disease of the buttocks, and rat-bite disease. Dr. Maxwell explained that the object of his paper was to stimulate investigation of these little-known maladies. Though the first of them is very common in China, the literature relating to it is scanty and unsatisfactory. The symptoms of febrile tropical splenomegaly, as observed by the author of the paper, are as follows: insidious onset; splenic enlargement, always considerable; cirrhosis of the liver, in early cases hypertrophic, in late cases usually atrophic; anæmia; periodic attacks of irregular fever; ascites in the late stages, associated sometimes with general anasarca; a tendency to progress to a fatal termination, though there

may be long intermissions; more rarely, and this especially in young subjects, the disease runs an acute course, death occurring in about a year. The disease is found in all ages and in both sexes, but is particularly an affection of the prime of life. These symptoms resemble those of a disease found in Egypt, and described in the Transactions of the Society of Tropical Medicine, London, for July, 1912. Dr. Maxwell had not been able to identify the germ of the disease, but he criticised the theory propounded in the article just quoted, that it was related to the Leishman body in kala-azar. Early in the course of kala-azar the Leishman body is found widely distributed over the body, and it would be absurd to suppose that removal of any one organ would influence the disease for good. On the other hand, there are good reasons for believing that febrile tropical splenomegaly may actually be cured in the early stages by splenectomy. Fistulous disease of the buttocks is rare and highly characteristic. Patients attribute its origin to an ordinary fistula in ano occurring a year or more previously. Both buttocks are riddled with sinuses forming a maze of passages under the skin, each being marked on the surface by massive induration. The disease is almost painless. As to the causal agent Dr. Maxwell had no positive knowledge. Possibly it belonged to the class of which sporotrichosis is a type, but he suggested with diffidence that it might be amœba histolytica. Still rarer and less understood is rat-bite disease. Dr. Maxwell's experience is confined to three cases: two associated with intermittent fever, lasting from one to three weeks, as described in Scheube's "Diseases of Warm Countries," and one case which may possibly have been a chronic form of the disease.

The Choice of Operation in Vesical Calculus.

Dr. S. COCHRAN, in a paper on this subject, advocated suprapubic lithotomy. He had carried out the operation in 228 cases with a mortality of only 3·9 per cent. It should be noted that the ages of 140 of the patients varied between 1 and 15 years. Air was used to distend the bladder in order to make it safe and easy to open. Inflation was effected by means of a bicycle pump or a Politzer bag, a filter of sterile cotton being interposed between it and the bladder. The air was retained by a tape tied round the penis. It was found that distension of the rectum was not only useless but actually detrimental. The opening into the bladder was closed by two layers of chromic gut sutures, and the abdominal wall by a single layer of silkworm gut. The lowest stitch was always left untied to allow of a wick of iodoform gauze being left in to drain from the bladder wall. Urine was passed through a catheter left in the urethra for four to six days; 51 per cent. of the cases healed by primary union, and in 73 per cent. no leakage of urine occurred.

Other Papers.

Dr. L. STANLEY, health officer of Shanghai, contributed a paper foreshadowing the lines upon which the Sanitary Organisation of China might be developed. He pointed out that though this vast country was devoid of what is ordinarily understood as sanitation, yet the national mode of life was based on hygienic principles. It is the Chinese custom to eat and drink nothing that has not been recently heated; the great mass of the people work in the open air, and the practice of conserving and returning excreted refuse to the soil, though it has its unpleasant aspects, is undoubtedly the soundest method so long as sterilisation of food is universal. The adoption of Western modes of life will make hygienic regeneration on Western lines necessary. Were China imbued with the true scientific spirit she might become a model of sanitation to the rest of the world. Dr. Stanley pictured a Utopian condition of things with a national health service presided over by a high Minister of State, perfectly organised, and carrying out its work in accordance with modern theories of sanitation and eugenics.

Dr. HAROLD EGGERS, in a paper on Racial Immunity, recorded the results of a preliminary study of the power of resisting disease possessed by Europeans as compared with Chinese. A series of experiments with 80 individuals, half of them European and half of them Chinese, with reference to their resistance to staphylococci infection resulted decidedly in favour of the Chinese.

Dr. J. PRESTON MAXWELL contributed a paper on the Use of Emetine Salts in the Treatment of Amœbic Dysentery. His notes of 10 cases thus treated corroborated the claims advanced by Rogers.[1] Emetine hydrochloride, gramme 0·01 to 0·05, dissolved in about 0·75 c.c. normal saline, was injected subcutaneously. Six was the largest number of injections required to effect a cure.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Lord Mayor of Bristol's Hospital Sunday Fund.

IT is gratifying and reassuring to those interested in maintaining the voluntary basis of hospital work in Bristol to find that the sums collected on Hospital Sunday this year are a little in advance of those received at the same date in 1912. The total for this year, so far as it has come in, is £1528, an advance of over £90 on the sum in hand at the corresponding period of last year. Of the total received, £522 goes to the Royal Infirmary, £438 to the General Hospital, £162 to the Children's Hospital, and £78 to the Eye Hospital. Smaller sums are also paid to the Orthopædic and Lock Hospitals, to the Bristol, Clifton, and Eye Dispensaries, and to the Medical Mission. This willing response to the Lord Mayor's annual appeal is all the more welcome because it seems to show that the public has realised that the need for hospitals has not disappeared with the foundation of a medical service under the National Insurance Act.

Royal West of England Sanatorium, Weston-super-Mare.

At the forty-third annual meeting of this sanatorium Mr. Henry Wills, who presided, spoke of the satisfactory financial position of the institution. The resident secretary, Mr. Halford Roberts, had resigned, and Miss Mawe, who for 17 years had been honorary lady superintendent, had been obliged to send in her resignation on account of her health. During 1912 there were 2628 admissions. The year's income amounted to £4388 and the expenditure £4440.

Queen Victoria Convalescent Home, Bristol.

At the thirteenth annual meeting of this institution some interesting figures were published. During the year 1912, 1954 patients were admitted; 129 of these were paying patients, the remainder, of whom more than two-thirds came from the General Hospital and Royal Infirmary, being admitted free. The average daily number of patients in the institution was 79, and the average length of stay 14¾ days. The income for the year was £2934, and the expenditure £3017. The Lord Mayor of Bristol, who presided, said he had found that during the 13 years' career of the home its patients had in the aggregate put on 30 tons weight.

Royal Devon and Exeter Hospital.

The 172nd annual report of the Royal Devon and Exeter Hospital, which has just been issued, states that during 1912 the in-patients admitted were 1754, against 1647 in 1911. The out-patients treated were 5033, against 5113 in the preceding year. The average daily number of in-patients was 156 and the average length of stay was 31 days. The average cost per occupied bed amounted to £58 14*s.* 6*d.* The financial statement shows that the ordinary income was £10,097, the ordinary expenditure being £11,961. The committee reports the resignation of Mr. E. J. Domville as a member of the active staff of surgeons, after 40 years' devoted service, and recommends that he be appointed honorary consulting surgeon and also an honorary life governor.

The Health of the Honiton (Devon) Rural District.

Mr. D. Steele-Perkins, the medical officer of health of the Honiton rural district, in his annual report for 1912 states that the population of the district is 9597. There were 104 deaths, equal to a rate of 11·8 per 1000. 171 births were registered, the lowest on record. Ten deaths were due to cancer, as against 7 in 1911. Mr. Steele-Perkins states that the increase in deaths from cancer appeared to be general throughout the rural districts of Devonshire. He remarks that the dearth of midwives in rural areas calls for immediate action. There is a serious shortage of midwives in his district, and this tends to increase an undesirable class

[1] THE LANCET, Oct. 19th, 1912, p. 1062.

of women, knowing absolutely nothing about nursing, who undertake nursing after the midwife had attended the case.

Attendance on the Dependents of Insured Persons.

The medical men of Lydney and district, in the Forest of Dean, Gloucestershire, recently submitted to the colliers, tin-workers, railwaymen, and others engaged in labour a scheme for treating their wives and children. The workmen declined to agree to the terms proposed; they have decided to establish a medical aid association, and have selected three medical men for the appointment of medical officer.

The Cornwall Insurance Committee.

At a meeting of the Cornwall Insurance Committee held on Feb. 19th it was stated that there were 68,600 insured persons in the county. It was also reported that the Committee was allowed £1462 for administration purposes, £30,960 for medical benefit, and £2580 for sanatoriums.

The Liability of Insured Persons for Attendance in Emergencies from other than their own Doctors.

At the last meeting of the Cornwall Insurance Committee an interesting point raised by a medical member, Dr. J. E. Webb, came under discussion. Dr. Webb stated that an insured person met with an accident outside the district in which he resided, and was attended by a medical man for the injuries. The question arose, To whom was this practitioner to look for payment of his fees? The chairman said that the insured person must pay them. Dr. Webb, however, replied that it had been stated in the House of Commons that no claim could be made against an insured person for medical attendance. After some discussion the Committee recommended that the Insurance Commissioners be asked to pay the fees in this case; but as it was pointed out that this would establish a precedent it was eventually decided to refer the matter to the medical committee.

Feb. 25th.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

Durham University College of Medicine.

THE annual meeting of the governors of the College of Medicine was held on Feb. 12th in the college, Sir G. H. Philipson, President of the College and Vice-Chancellor of the University, being in the chair. The report of the college was received and adopted. Mr. Cochrane, the treasurer, commenting on the accounts, said there were this year fewer fees for students, and that a much better arrangement had been made with the Newcastle corporation as to fees for public health work. The general financial position of the college was a steadily improving one. In the report reference was made to the grant from the Board of Education, under the regulations of which the work of the past year has been carried on. It was pointed out that the details of the agreement between the college council and the honorary medical and surgical staff of the Royal Victoria Infirmary, whereby the Board of Education would give additional grant for clinical teaching, had not been approved by the Board, which could not sanction any arrangements unless the college council had full control, financial and otherwise, over the instruction provided. The difficulty pointed out is due to the fact that the medical school and the teaching arrangements at the infirmary are not under the same management. It was hoped that some arrangement might be come to which the Board of Education could sanction.

Newcastle-on-Tyne Hospital for Sick Children.

The annual court of governors of this hospital was held on Feb. 11th, Lord Armstrong presiding. The annual report was read and adopted. It showed an increase of work done in all departments, both among in-door and out-door patients. Special reference was made to the needs of the institution, and the meeting was told of the enlargement of the operating theatre, &c., all of which was absolutely necessary for the effective carrying on of the work. For urgent purposes in this connexion an outlay of some £8000 had been necessary, but a special appeal had been made to the public to raise £20,000.

Miners and Medical Men in Durham and Northumberland.

Since the commencement of the working of the National Insurance Act there has been considerable discussion as to the rates at which medical men have hitherto attended the miner and his family, and questions raised as to whether the practitioner would continue to charge the same amount now, seeing that the men are insured under the Act. The rate for some years past has been a contract for all ordinary medical attendance for the miner and his family for a payment of 9*d.* a fortnight. The rate for the single miner was 6*d.* a fortnight. The miner argues that, having regard to the fact that he himself is now compulsorily insured and the medical man paid for the work, the amount he paid for himself, his wife, and family must therefore be reduced, and various suggestions have been made as to rate, mostly fixing 6*d.* a fortnight as the sum. Meetings have taken place of miners and medical men, and in Northumberland these meetings have been joint meetings. No conclusion has been arrived at as yet. The Durham colliery surgeons have met to discuss the situation, and reaffirm the decision to charge the fortnightly subscription of 9*d.* for attendance on the wives and families, and call upon all members of the British Medical Association to maintain the unit fee for contract work fixed by the Government, with the acceptance of the medical profession, under the Insurance Act, equivalent to a family rate of 9*d.* a fortnight. The meeting further pledged itself to resist all attempts to introduce a lesser and cheaper grade of medical contract practice, such as would follow a reduction on the present rate of subscription.

Royal Victoria Infirmary: Annual Court of Governors.

The annual court of governors of this infirmary was held on Feb. 22nd in the infirmary, the Lord Mayor, Alderman Weidner, being in the chair. The various reports were adopted. In the general report it was stated that the cost per patient per head was £4 11*s.* 6½*d.*, as against £4 9*s.* 9½*d.* in 1911, whilst the cost per occupied bed worked out at £89 6*s.* 2*d.*, as against £86 9*s.* 7*d.* in 1911. The income for the year was £46,514, against £37,985 in 1911, whilst the expenditure was £40,933, as compared with £37,149. The committee regretted that—

> The income under the head of subscriptions does not more rapidly increase. About 50 new subscribers have been added during the year and several others have increased their support. On the other hand, the list has been diminished by the decease of several generous subscribers and from other causes during the year. The coming into operation of the National Insurance Act and other compulsory legislation makes it increasingly difficult to obtain new subscriptions. It is hoped that when the position of the voluntary hospitals under these Acts is understood, generous consideration will be given to the continued appeals of the committee. For the first time since the reorganisation of the subscriptions committee we regret to report a decrease in workmen's contributions amounting to some £157. The national strike of miners during the early part of the year accounted for a decrease of £870 odd in colliery workmen's subscriptions. The income from other classes of workpeople has been increased £700 odd.

Of incidents in the proceedings it is desirable that some note should be made. At the outset a workman governor wished to know why the resolution from the Chopwell miners had not been placed on the agenda for the meeting. The house governor explained that the house committee was unanimously of the opinion that such a resolution would be out of order. The resolution ran:—

> That employers of labour, limited liability companies, industrial concerns, and business men, be asked to contribute to the funds of the infirmary in the same proportionate rate as their employees, according to their respective income and profits.

This resolution, though it was ruled out of order at the moment, was considered by a large majority proper for a place on the agenda for the next meeting, and instructions were thus given to the house committee. In making any comment upon the proceedings of this annual court it may be at once said that the terms of such a resolution give the keynote to the mental attitude which is taken up by the workmen of the district in regard to the Royal Victoria Infirmary and its finances and duties. Put definitely, the prevailing idea is that any contributions entitle the contributor to benefit. The converse of this idea, that non-contributing areas and collieries should not have benefit, has not been put into practice, but it is interesting to note some of the remarks which fell from the speakers on Saturday afternoon. For instance, Mr. Straker (Northumberland miners), in seconding the adoption of the annual accounts, said:—

> That had it not been for the miners' strike the contributions of the miners would have been greater than ever before. And, further, he noticed that coal had cost over £700 more owing to the strike of miners and the increased cost, and he suggested that the coal owners might make up that amount, for he was sure that they had benefited to more than that extent.

Moreover, Mr. Charles Irwin, in moving the adoption of the

report of the subscriptions committee, said in the course of his remarks:—

> Now, we have 32 non-contributing collieries in Durham alone, and out of these 32 we had 157 patients last year. Now does that justify us in going again and asking for subscriptions? I venture to say that it does. ..... As regards the owners, from 15 collieries in Northumberland and Durham we had 161 accidents—and you know what that means to the compensation fund—and they contributed nothing. I appeal to the owners, in face of the considerable sums that they must save year by year, that it is their duty and privilege to give something to this institution because every accident that comes here is in favour of the employers.

I have had occasion, in reviewing former annual courts, to deplore the spirit which is shown by the above remarks, and to point out that there was more than a tendency to ignore the original idea of the institution, to treat the sick and lame poor, and to graft on to the work something in the nature of a provident institution. The reference to the benefits obtained by the employers of labour in that their accident cases are treated at the infirmary affords food for thought. Surely the functions of a charitable institution do not include benefiting the employer in this way. If the capitalist is to benefit, even indirectly, the services of the medical profession are open to him in the ordinary way, and the services of a voluntary medical staff should not be thus exploited. How far the working of the National Insurance Act will affect the Royal Victoria Infirmary remains to be seen as a matter of experience. It is interesting to note that the house committee has instituted a new scheme of admission of patients through one portal under the supervision of a resident medical officer, whose duty it will be to see all cases before admission. At the same time, many inquiries are to be made into the social status of the patients. In view of the large workmen's subscription list, and remembering the various opinions of the workman governor, it seems difficult to say what will be the precise effect of such a careful social investigation.

Feb. 25th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh Royal Asylum, Morningside.

IN 1807 the Edinburgh Asylum for the Insane was incorporated by Royal Warrant, but the first patient was not admitted until July 19th, 1813, so that the present year marks the centenary of the institution. The annual meeting was held on Feb. 24th, when the Lord Provost occupied the chair. In the annual report it was stated that during the last year 975 patients had been treated in the asylum, 222 had been admitted, and 129 discharged. Since its opening, 21,942 patients had been under treatment. The average daily number of patients in Craig House was 215, and considerable sums had been expended in keeping the buildings and furnishings abreast of the times. The average daily number in West House was 535, an increase of 5 compared with the previous year, and the deficit on the year's workings in connexion with it was £1036 19*s.* 4*d.* The mean rate of board for each intermediate patient here was £45 10*s.* 8*d.*, making a deficit of £1 8*s.* 3*d.* for each patient, while for patients on the lowest scale the deficit per head was £2 9*s.* 8*d.* The managers consider, owing to the price of coal, that next year they will be compelled to raise the rates all round, especially as the Insurance Act involves an additional annual expenditure of £160. They again recorded their obligation to Dr. George M. Robertson, physician-superintendent, and all the members of the staff. Dr. Robertson reported the following points of special interest. Of the forms of insanity admitted, melancholia, as usual, was the most prevalent, accounting for nearly one quarter of the admissions. General paralysis of the insane occurred in 24 cases, only one of which was a female. Amongst the exciting causes of insanity alcoholic excess, as in former years, headed the list, but the proportion of alcoholic insanity was less than usual, being only 11·2 per cent. of the total. The recovery rate during 1912 was 26 per cent. of the total number of admissions. This low rate was partly accounted for by the large number of senile cases admitted. The death-rate of 8·2 per cent. was the lowest recorded for over 20 years with one exception—1910. There were only 6 deaths due to phthisis. The insane are now carefully observed and examined, and receive sanatorium treatment from the earliest recognition of symptoms of consumption. Dr. Robertson insisted at some length on the efficacy and entire safety of tube feeding, and emphasised the necessity of commencing this treatment in "hunger strikers" early, before strength had been lost. Having performed the operation over 2000 times, he had never seen any evil results, but the reverse. Any evil effects that may ever have followed must have been due to struggling by the patient. A case of pellagrous insanity was recorded in a young woman from Shetland who had never been abroad. She had never eaten maize, but had eaten quantities of raw oatmeal and rice. This is the first known case of pellagra in this country for 45 years. Dr. Robertson called attention to a hardship in the fact that the Royal Asylums of Scotland are excluded from the operation of the Superannuation Act, which applies to all district asylums, so that an official passing from the service of a Royal asylum to a district asylum, or *vice versâ*, or from one Royal asylum to another, loses all rights to any pension he may have acquired, but not if he passes from one district asylum to another, whether in England, Scotland, or Ireland.

The Morison Lectures.

The Morison lectures of the Royal College of Physicians of Edinburgh will be delivered at the College Hall on March 10th, 12th, and 14th, at 5 P.M., by Dr. George M. Robertson, who will take as his subject Recent Observations Relating to General Paralysis of the Insane. The lectures will deal respectively with the new reactions and signs of general paralysis, its early diagnosis, and its etiology, prophylaxis, and treatment.

The Indian Medical Service Dinner.

The annual dinner of the Indian Medical Service will be held on Friday, May 30th, in Edinburgh, when the chair will be taken by Sir Alexander Christison, Bart.

Insurance Act: County of Aberdeen Arrangements.

At a meeting of the Medical Benefit Subcommittee held in Aberdeen on Feb. 15th a report was submitted as to the arrangements for the administration of medical benefit in the county of Aberdeen for the provisional period to April 15th next. 104 medical men, practically all the doctors in active practice in the county save one, who claimed that his practice was exceptional, were on the panel. The doctors have agreed that remuneration should be by capitation, and that for the provisional three months no income limit should be fixed. Also that during that period no person or class of person should be called upon (or allowed, except for good cause shown) to make their own arrangements for medical benefit. Attendance, if required, will also be given to old and infirm members of Friendly Societies on the same terms as insured persons. The subcommittee recommended that the demand of the practitioners to be allowed to supply drugs and appliances to all insured persons resident in a rural area more than a mile from the place of business of any panel chemist, and to be remunerated by way of capitation, be agreed to, provided that the drugs and medicines were dispensed by the practitioners themselves, or under their personal supervision. In regard to the administration of medical benefit, after consultation with a deputation from the Medical Committee it was agreed that the rules for summoning medical advice, the hours at which this should be called, and the hours for consultation, should be as proposed for cases of emergency. The clerk reported that from 6000 to 8000 persons had not chosen their doctor. At a meeting of the finance subcommittee with regard to benefits for persons over 65 years of age at the date of the Act it was agreed to grant 5*s.* per week medical benefit, and 5*s.* per week sickness benefit. It was reported that one claim for maternity benefit had been paid, but the amount paid was only 8*s.* 7*d.*, instead of 30*s.*, as the claimant was a deposit contributor who had only 8*s.* 7*d.* to draw upon. At a meeting of the sanatorium committee it was reported that since the Act came into operation 22 applications for sanatorium benefit had been received, but that these were all being treated at home.

Consumption Sanatoriums: Aberdeen Proposals.

The medical officers of health of the city of Aberdeen and the counties of Aberdeen and Kincardine have prepared a report dealing with the scheme for a joint sanatorium for the

treatment of tuberculosis under the National Insurance Act. The report suggests that in regard to domiciliary and dispensary treatment in rural districts the services of the district nurse, if there is one, should, so far as her time allowed, be made available for the visitation of tuberculous cases—especially advanced cases—in their own homes, in order to assist the doctor in securing the maintenance of proper precautions. The medical officer of health of the city of Aberdeen has already one nurse exclusively employed in such work, and he expects that two nurses will soon be required, especially if they are also to give assistance at the proposed dispensary. As regards the establishment of tuberculosis dispensaries or clinics and the appointment of tuberculosis medical officers for the three areas to which the report refers, the medical officers are of opinion that it would be difficult to have a joint arrangement that would embrace all three areas, although some degree of coöperation is both desirable and practicable. The medical officer of the city had suggested that a suitable detached building at the city hospital might be utilised for a tuberculosis dispensary, and that a tuberculosis officer should act both as officer of the dispensary and as ordinary physician to the tuberculosis wards at the hospital. The county of Kincardine had already had under consideration a proposal to request the county medical officer and his assistant to undertake the duties of tuberculosis medical officers. The population of the county is scarcely 30,000, so that the appointment of a whole-time medical officer would not be warranted. Aberdeenshire has a population not far short of that of the city, and its medical officers think that a whole-time medical officer should be appointed, to reside in the city of Aberdeen, and perhaps to be associated with the tuberculosis wards at the city hospital, so that he might keep in touch with hospital diagnosis and treatment. It might also be advisable to establish small dispensaries in several of the more populous centres, such as Peterhead, Fraserburgh, and others, but a beginning should be made with only two or three dispensaries in order to ascertain from actual experience their value and convenience. The use of a couple of rooms where available, in an existing hospital or conveniently situated building would be amply sufficient. As to sanatorium treatment, the city had already made provision for 60 to 70 cases of tuberculosis at the city hospital, and could not be expected to take part in the erection of a joint hospital. The medical officers think that each county should make separate provision for its own advanced cases by utilising wards in existing hospitals, or erecting suitable additions to the present isolation hospitals. They think one large sanatorium for the three areas would be as efficient as and more economical than separate smaller ones. They consider the estimate of the Astor Committee with regard to necessary accommodation as too low, at least, for urban populations, especially since the Act forbids Local Insurance Committees arranging with parish councils for the treatment of tuberculous persons. On the whole they think that, should a joint sanatorium be erected, there should be accommodation for not fewer than 100, preferably for 120, beds with provision for extension if necessary to 150 beds. At least 20 beds should be for tuberculous children, and they regard it as worthy of consideration whether 20 beds should not be reserved for so-called pre-tuberculous children. If the larger sanatorium was decided on the sum to be raised from local sources would be £6400. The annual cost of a joint sanatorium was estimated at £8500, and the interest on the sinking fund £383. Of the total expenditure the city would account for £4465, the county of Aberdeen for £3412, and the county of Kincardine for £623.

Feb. 25th.

DONATIONS AND BEQUESTS.—By the will of the late Sir William Arrol, of Seafield, Ayr, the Royal Infirmary and the Western Infirmary, Glasgow, will receive £2500 each.

ASSOCIATION FOR PROMOTING THE TRAINING AND SUPPLY OF MIDWIVES.—The ninth annual meeting of this association will be held at the Central Buildings, Westminster (entrance Tothill-street), on Friday, March 14th, at 12 noon. The chair will be taken by H.R.H. Princess Christian of Schleswig-Holstein, and a short address on Midwifery and the Maternity Benefit will be delivered by Dr. Christopher Addison, M.P.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National University.

LAST week a statute was issued by the Senate of the National University of Ireland. It intimates that diplomas may be issued in various subjects, including, among others, public health, tropical diseases, mental diseases, and veterinary hygiene, to students who, although they may not have matriculated at the University, shall have completed the courses of study prescribed, and shall have complied with the regulations prescribed by the University and passed the examinations prescribed, provided that the diplomas in public health, in tropical diseases, and in mental diseases shall not be granted except to a registered medical practitioner.

Infantile Mortality in Dublin.

At a meeting of the Committee for the Prevention of Infantile Mortality, held in the Mansion House, Dublin, on Feb. 21st, it was stated that the infantile mortality in Dublin was 142 per 1000, which is the second highest rate in the United Kingdom. Mr. A. J. Horne, Master of the National Lying-in Hospital, attributed this awful mortality to the following chief causes: (1) bad housing, (2) drink traffic, and (3) influx from the country, with consequent overcrowding and improper food.

The Commission on Medical Benefit.

The Commission on Medical Benefit at its first sittings, to be held next week in Belfast, will devote itself solely to inquiry as to whether the medical benefit should be extended to Ireland or not. No conditions or matters of detail will be considered. As a consequence only three medical witnesses are likely to be examined at this stage. Should the committee decide this main question in the affirmative, it will sit again at a later date to consider the terms on which the benefit should be extended. Resentment is felt by the medical profession in Belfast that the Commission has refused at present to hear any evidence from the medical witnesses appointed to put forward the views of the medical profession in that city and also has declined to admit witnesses on behalf of the Royal Victoria Hospital, Belfast. Further, only one medical witness is to be called to represent the whole of the north of Ireland. The situation will need very careful handling.

Payment for Medical Certificates under the National Insurance Act.

The Irish Insurance Commissioners held a conference last week with representatives of the leading Approved Societies, at which, among other matters, the disposal of the £50,000 recently voted by Parliament to assist in obtaining medical certificates came under discussion. The societies naturally were anxious to have the spending of this money, but their demand was met by a definite refusal. The Commissioners laid it down as a principle that the fund is to be administered by the Insurance Committees. This decision will meet with warm approval from the medical profession. The societies, however, are receiving in return a concession which seems to have been tacitly, rather than overtly, granted. They are to be relieved of the duty of finding any money to pay for evidence of sickness. Under the terms of the Act the duty of paying for evidence of sickness was put on the societies, the expenses to be drawn from their administration funds. This sop to the societies need not concern the medical profession, were there any assurance that the £50,000 would be sufficient for the purpose. On this point there is reason for doubt. The Commissioners would be wiser to insist that if in any area the share of the £50,000 allotted to such area were found to be insufficient to pay for medical certificates, the deficiency should be borne in due proportion by the societies concerned. In whatever scheme the Commissioners may adopt the demand of the profession that the certificate must be signed by the medical man in attendance should be borne in mind.

The Problems of Maternity Benefit in Ireland.

Maternity benefit in Ireland is leading to endless discussions

in our lay press. Owing to the deliverance of the Local Government Board, many boards of guardians are earning a cheap popularity by suggesting that the dispensary doctors must, by the issue of a "red line," attend women at their confinements in order that all the maternity benefit be made available to the mothers, forgetful of the fact that the first charge on the 30*s.* is the nurse or doctor. "Women of the working classes in critical cases are neglected sadly," said Mr. Lloyd George in the House of Commons, "sometimes through carelessness, but oftener through poverty, and that is an injury, not only to the woman herself, but to the children born. We therefore propose that there should be a 30*s.* benefit in those cases, which would cover doctoring and the nursing, but only conditional upon those who are women workers not returning to their work for four weeks." The certificates required by some societies before maternity benefit is paid are simply to show that the money is being expended—as it was intended—in providing either a nurse or doctor. If a certificate means simply to prove that a son or daughter has been born to a woman qualified to receive maternity benefit, such a document can be obtained when the child is being registered at a cost of 3*d.* As is pointed out in an able letter to the lay Irish press of Feb. 22nd by Dr. Samuel Agnew, medical officer of health of Lurgan, the attempt in many parts of Ireland to provide cheap charity at the expense of the wretchedly paid dispensary doctors, which has been so manifest recently at the meetings of boards of guardians, comes badly from those bodies which exact 4*s.* from all old-age pensioners in the workhouse. If they are so anxious that the 30*s.* maternity benefit should be preserved intact to be spent on the rest of the family, they should invite insured women during the time of their confinements to come to the maternity wards in the workhouses, a line of policy which, however, would quickly bring down on them the wrath of the Insurance Commissioners and of the Local Government Board. Another question that is sure to give rise to keen discussion is the relationship of maternity hospitals to the maternity benefit. It would appear that lying-in hospitals are to be paid by the Approved Societies a grant of 5*s.* for each patient confined in the intern or out-patient departments who is entitled to maternity benefit, a sum which is also to cover the necessary certificate. Now this raises two difficulties: (1) Are outside panel doctors and midwives to be undercut in this way by the maternity hospitals? and (2) Will the voluntary subscribers to such charities not object that the receiving of Government money in this way clearly indicates that the institutions are no longer charities?

The Belfast Lister Memorial.

A local committee was formed in Belfast on Feb. 19th, with the Lord Mayor as treasurer, to collect money in aid of the national memorial to the late Lord Lister.

Feb. 26th.

QUEEN CHARLOTTE'S HOSPITAL.—The annual meeting of governors and subscribers of Queen Charlotte's Hospital was held on Tuesday last week. The chair was taken by Mr. F. W. Hunt, Vice-president. The report stated that during the past year 1880 patients had been admitted to the wards of the hospital, being the largest number ever received in one year. In addition 2367 patients had been attended and nursed in their own homes. The committee regretted that the income had been insufficient to meet the expenditure by £1257, and as there had also been a deficiency of £1970 in the year 1911 there was now a total deficiency of £3227, to meet which arrangements for an overdraft at the bank had had to be made. A preliminary training school had been opened in connexion with the midwifery training school. In moving the adoption of the report the chairman appealed for increased support to meet the outstanding liabilities and to provide a much needed new out-patient department. The annual meeting of the ladies' association of the hospital was subsequently held. Considerable progress had been made by the association, of which there were now over 200 members. Valuable gifts of linen had been made to the hospital. A bed (the Ladies' Association bed) was being supported by annual subscription, and a donation of £200 had been made towards the proposed new out-patient department.

Obituary.

SIR THOMAS FREDERICK CHAVASSE, KT., J.P., M.D. EDIN., F.R.C.S. ENG. & EDIN.,

CONSULTING SURGEON TO THE BIRMINGHAM GENERAL HOSPITAL.

Sir Thomas Frederick Chavasse died suddenly from pulmonary embolism on Feb. 17th at his residence, the Linthurst Hill, Barnt Green, Birmingham, at the age of 58. On Dec. 13th, 1912, he met with an accident in the hunting field, breaking his thigh in four places, and suffering considerably from the exposure before he could be conveyed home. Since then he had been confined to his room, but was making good, if slow, progress. On the day of his death he had been walking about his bedroom, and there was every prospect of his ultimate recovery, when a sudden change took place in the evening and he died in a few hours.

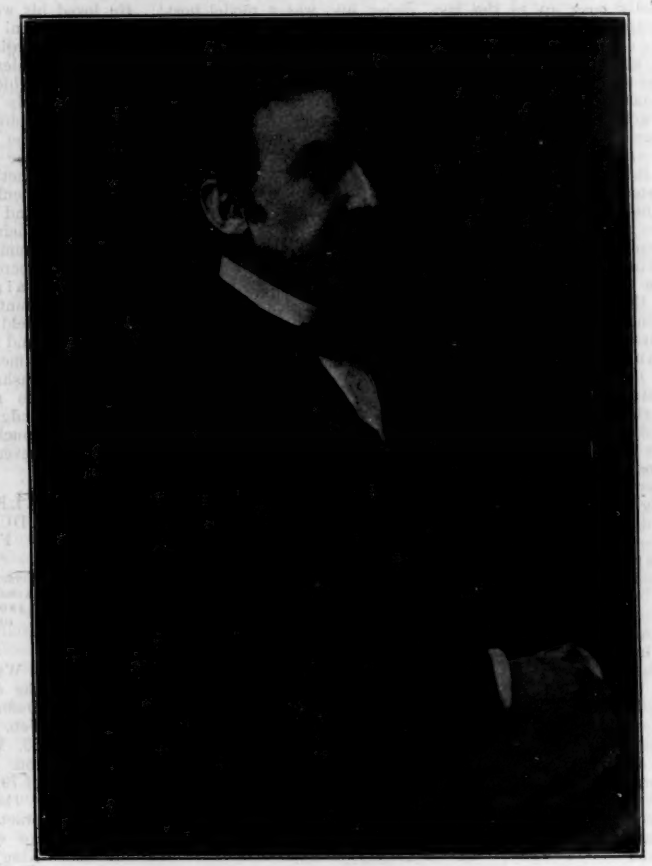
Thomas Frederick Chavasse came of an old family and one that has produced several worthy representatives of the medical profession. He was born in 1854, and was the sixth son of the late Mr. Thomas Chavasse, F.R.C.S., of Wylde Green House, Sutton Coldfield, Warwickshire. He received his early education at the Queen's College, Birmingham, and the General Hospital, proceeding thence to Edinburgh University, where he graduated as M.B. and C.M. in 1876. In the same year he took the M.R.C.S. Eng. and the L.S.A.

After graduating at Edinburgh Chavasse went to Vienna in September, 1876. There he worked hard at surgery, attending especially Billroth's clinic, and doing much operative work on the cadaver. At that time material was abundant, and Chavasse took full advantage of it. He and a friend arranged to have a body delivered once a week at the anatomical rooms, and the two men practised systematically all the operations that were possible. The number of British graduates in Vienna at that time was considerable, and there was an English table in the Piedhof, at which the men used to meet twice a day. Amongst those who were present during Chavasse's stay were Dr. George A. Berry (of Edinburgh), Dr. Samuel West, Dr. (now Sir James) Reid, the late Dr. Andrew Duncan, Surgeon-Major Shepherd (soon afterwards killed at Isandula), and towards the latter part Mr. C. H. Mansell Moullin and Dr. Story (of Dublin). After spending six profitable months in Vienna Chavasse went to Berlin, where he worked chiefly with Langenbeck, returning home at the end of the summer to become house surgeon to Professor Spence in the old Edinburgh Infirmary. He had a great affection for his chief, admiring his great clinical acumen and operative dexterity, but he was none the less a convinced disciple of Lister and a most regular attendant during his student days at the latter's Sunday afternoon clinics. Amongst his fellow residents were Dr. George Gibson (who died only a few weeks ago), Dr. James Murray (of Inverness), and Dr. David Grant (of Melbourne). With all three his friendship was life-long.

In 1877 Chavasse qualified for the F.R.C.S. Edin., but had to wait a year for the diploma, as he had not yet attained the statutory age of 25. In the same year he was appointed assistant surgeon to the old General Hospital in Summer-lane, Birmingham. In 1878 he took his M.D. degree. The F.R.C.S. Eng., *honoris causâ*, was conferred on him in 1899. He was appointed full surgeon to the General Hospital in 1881, and his active connexion with the hospital continued for 31 years, until he resigned in March, 1912, as senior surgeon. He was then appointed to the consulting staff, and received from the board of management a cordial expression of appreciation of his conspicuous services to the hospital. These services were not confined to the professional side, for he was a generous contributor to its funds, and endowed a bed at a cost of £1250 in memory of his father. His influence, moreover, was continually at work in all directions on behalf of the hospital, and among other fruitful results had a great share in securing for it the splendid donation of £25,000 from Miss Ryland, a relative of his wife, which rendered possible the construction of the present admirable institution. So recently as Jan. 30th of this year, as stated in THE LANCET of Feb. 8th, p. 416, a presentation was made of a three-quarter length portrait by Mr. A. T. Nowell of Sir Thomas Chavasse, to be hung in the board

room of the hospital. Owing to his accident he could not be there, but Lady Chavasse attended, and was presented with a replica of the portrait. His son, Mr. Arthur Chavasse, an Oxford graduate in arts and medicine, and a resident medical officer at St. Thomas's Hospital, was at the same time presented with an illuminated address on behalf of his father.

Sir Thomas Chavasse's interests and activities were wide and varied. He was a former president of the Midland Medical Society and of the Birmingham Branch of the British Medical Association, of the Queen's College Medical Society, of the Birmingham Medical Institute, and of the Birmingham Medical Benevolent Society. He was also a member of the Royal Medical Society of Edinburgh. As consulting surgeon to the Bromsgrove Hospital—where Lady Chavasse and he, among other benefactions, bore the cost of the Arthur Ryland Ward, named in memory of Lady Chavasse's father—to the Sutton Coldfield Dispensary, and to the Corbett Hospital, Stourbridge, his services were always at their disposal. He was also greatly interested in First Aid and ambulance work. In politics, in which he took a very active interest, he was a Liberal Unionist. He was chairman of the East Worcestershire Liberal Unionist Association, and a close personal friend of Mr. Austen Chamberlain, M.P., at whose meetings he frequently took the chair, and who on the occasion of his funeral paid a warm tribute to him both as a fellow worker and as a kind and devoted friend. He was a justice of the peace for the county of Warwick, and received his knighthood in 1905. Sir Thomas Chavasse was not an extensive contributor to the medical press, most of his contributions, which were usually weighty in character, being communicated to different societies, and appearing in their Transactions. He was the author of the articles on Injuries of the Abdomen, Rupture of the Liver, and Rupture of the Spleen in "Heath's Dictionary of Surgery." He also published a work on the "Operative Treatment of Genu Valgum" in 1879, and one on the "Diagnosis of Cervical Tumours" in 1882.



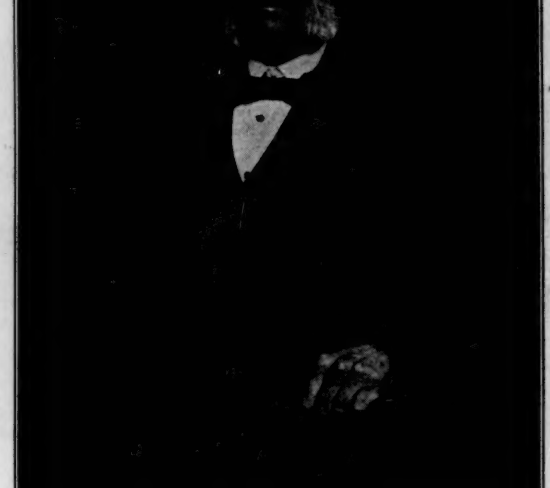
SIR THOMAS FREDERICK CHAVASSE, M.D. EDIN., F.R.C.S. ENG. AND EDIN.

Sir Thomas Chavasse married, in 1885, Frances Hannah, only daughter of Mr. Arthur Ryland, J.P., of Birmingham, and the Linthurst Hill, Barnt Green, by whom he had one son and three daughters, all of whom survive him. The funeral took place at Bromsgrove Parish Church cemetery on Feb. 21st, Sir Thomas Chavasse's brother, the Right Rev. Francis James Chavasse, D.D., Bishop of Liverpool, assisted by the Vicar of Bromsgrove and the Rev. H. S. C. Whitehouse, a nephew of the deceased, officiating, in the presence of a very large assemblage, not only of personal friends, but of the local and Birmingham public and representatives of the University of Birmingham, the Birmingham General Hospital, the Queen's Hospital, the Bromsgrove Cottage Hospital, the Birmingham Branch of the British Medical Association, the Midland Medical Society, and other bodies, scholastic, political, and charitable, with which he had been actively identified.

A correspondent writes: "It was in the summer of 1877, when Thomas Chavasse was house surgeon to Professor Spence in the old Royal Infirmary, Edinburgh, that I first made his acquaintance, on my appointment as dresser. At that time the battle of antiseptics was in full blaze, and the arguments between the defender of the old faith and a champion of the new gave a zest to the clinical instruction in the wards which was of a lasting and striking character. The affection of the old professor for his young and enthusiastic house surgeon qualified all controversies and inspired those who were privileged to listen with a lifelong enthusiasm for their work. It was on Saturday nights, however, when we really got to know each other. Chavasse had all his clerks and dressers in attendance on casualty duty, and well do I remember the delightful times Brander (since dead), Begg (now of Bath), myself, and a few others used to have whilst 'waiting' in Chavasse's room. At the end of the term it was decided that a testimonial should be got up and signed by every member of the clinic to assist him in obtaining his first appointment in Birmingham. It fell to my lot to do this, and the late Dr. George Gibson and I wrote it on the demonstrator's desk in the old dissecting room. I had the distinction of presenting it, and it came to him quite unexpectedly. From that day to this he has been my constant friend. He worked hard to get me my first appointment in Birmingham, and for a period of 33 years he has been always the same. He was a fine fighter—more especially if he was fighting for a friend. He seldom lost, and the celebrations of these victories round his hospitable board were quiet and encouraging stimuli to fresh efforts for other needy souls. He was never afraid. 'In quietness and in confidence shall be thy strength' was never better exemplified than in his life work. In all the offices of distinction which he held he was hailed by the whole profession as the 'right man,' and his laying to rest was one of the most touching and silently eloquent episodes that Birmingham has witnessed. As a surgeon he was fearless and original, as a consultant he made up his mind and stuck to it, and in

the sick room his gentle and commanding sympathy endeared him to everybody, irrespective of rank or position. A common friend whom he once attended with me said, 'If Chavasse says my head has to come off it has got to be done, so it is no use saying any more.' Such was his power. Of his strictly hospital life others can speak. Of his interest and work in the political world recognition is not wanting; of his unknown help to those in need there is no record here; but many recall his labours on behalf of his fellows since his retirement from actual practice, his work on behalf of the British Red Cross Society, of which he was a very active and enthusiastic county director for Worcestershire, and of the St. John Ambulance Brigade, for these stand out as evidence that had time been with him he had more to do. Last autumn he spent a week with the St. John Ambulance Brigade in camp, and took an active part in the work, so that he might know all at first hand. He was whole-heartedly busy up to the last, doing his share willingly and with pleasure for the good of mankind."

A surgical colleague writes the following appreciation of Chavasse as a surgeon: "Sir Thomas Chavasse had by his early training prepared himself for the practice of surgery. An initiation into the methods of Lister, and a firm belief in their efficiency, enabled him to keep abreast of the rapid advances that were taking place about the time of his appointment to the full staff of the Birmingham General Hospital. Study in Vienna and Berlin had widened his outlook and stimulated him to increased efforts. He was a progressive surgeon, always ready to give a fair trial to new methods, though reserving to himself the right to reject them if they did not answer the purpose for which they were advocated. His clinical instinct enabled him to come quickly to a conclusion as to the nature of a case, and, having made up his mind what line of treatment to adopt, he acted boldly and was prepared to deal with any difficulties that arose. His influence was that of a strong man whose opinion was founded on a wide experience, sound judgment, and a knowledge of men and affairs. A close association with him in the wards of the hospital for many years has been a great privilege, for, apart from his charming personality, there was always the consciousness of being able to obtain his counsel and advice under all circumstances which presented difficulties, either from a surgical or an administrative point of view."



ALFRED BAYNARD DUFFIN.

(From a photograph by Mr. C. B. Tahourdin, reproduced by his permiss on.)

An old friend sends the following appreciation of his personal traits: "Even when a very young man the strength of Chavasse's personality was apparent. His mind matured early. A famous old surgeon who knew him well as a student, described him at that time as 'wise beyond his years,' and it was this strength and maturity of his character that explained his position and influence amongst the men who were his contemporaries at the Edinburgh University. He was a good student, but he abstained consistently from competing in class examinations, so that he owed nothing to successes of that kind. He felt perhaps that the test was a fallacious one, and realised that his own strength did not lie in that direction. In practical sagacity and knowledge of the world he was far in advance of the vast majority of his fellow students. This was fully recognised even in those early days, and Chavasse himself was quite conscious of it. In his affection for some of his most intimate friends—men who were, perhaps, but little his juniors in years—there was a certain protective quality which sprang, no doubt, from this consciousness, a charming touch of elder brotherliness, combined often with kindly raillery or 'chaff.' Himself a man of deep and strong feeling, he had all the Englishman's constitutional aversion to the display of emotion, and assumed at times a mask of light cynicism which was liable to convey quite a wrong impression to a superficial observer. His sense of humour was of the keenest, and his fund of humorous anecdote seemed to be absolutely inexhaustible. Few things gave him greater pleasure than the exercise of hospitality, and he was a model host. He loved his work, the human side of it quite as much as the surgical side, and the extraordinary degree of confidence and affection with which he was regarded by his patients was the inspiration not so much of the skilful surgeon as of the strong and sympathetic man. He was particularly fond of children, and had many stories of their quaint unconscious humour. His favourite recreations were mountaineering and fox-hunting. In the hunting-field he was a 'straight' and fearless rider; at one time, perhaps, inclined to rashness, but of late years he rode with excellent judgment, the result of much experience and several accidents."

ALFRED BAYNARD DUFFIN, M.D. EDIN., F.R.C.P. LOND., F.R.C.S. ENG.,

CONSULTING PHYSICIAN TO KING'S COLLEGE HOSPITAL; AND EMERITUS PROFESSOR OF MEDICINE, KING'S COLLEGE MEDICAL SCHOOL.

WE regret to announce the death of Dr. A. B. Duffin, which occurred on Feb. 10th at his residence, 88, Manor-road, Wallington, Surrey, at the age of 79.

The son of a general practitioner in London, he was educated at King's College, London, and at the Universities of Edinburgh and Berlin. At Berlin he was a pupil of Professor Virchow, and here he laid the foundations of the pathological interest which was later to bear fruit in his clinical and teaching work. After qualification he was house physician at King's College Hospital in 1858 under Dr. George Budd, Dr. Todd, and Dr. George Johnson, and he often referred to his experiences in the old building which preceded the present King's College Hospital, so shortly to be exchanged for new premises. In 1860 he was elected assistant physician, in conjunction with the late Dr. E. Symes Thompson and with Dr. Edward Liveing. During the later years of his lengthy service in the out-patient room he devoted one afternoon each week to seeing out-patients with skin diseases, and his teaching of this subject was much appreciated by the students of that time. In 1874 he became physician with charge of the in-patients, and in 1876 he was made professor of pathological anatomy in succession to Dr. Lionel Beale, an

appointment which he relinquished in 1893 on becoming professor of the principles and practice of medicine. In this chair he was for a short time associated with Dr. Burney Yeo before becoming professor of clinical medicine. For many years he was an active member of the committee of management of King's College Hospital. In 1898, on retiring from his hospital appointments, he was made consulting physician and Emeritus professor of medicine.

Dr. Duffin was elected a Fellow of the Royal College of Physicians in 1873. In 1889 he was an examiner in medicine at the Royal College of Physicians and he also examined in medicine at the University of Edinburgh. In 1894 he was appointed a Member of the Council of the Royal College of Physicians. In addition to his degree of M.D. of the University of Edinburgh he held the Fellowship of the Royal College of Surgeons of England, and somewhat prided himself on being one of the few physicians practising medicine who possessed this distinction. He was also an honorary Fellow of King's College, London. For many years he was physician to the Church Missionary Society, and he was also examiner for various insurance societies. Although he never published any of his lectures in book form, he was the author of several articles on medical subjects which appeared in the proceedings of different medical societies and in the medical press.

As a teacher, Dr. Duffin's pupils remember him mainly for the readiness with which he imparted the fruit of his large store of experience and reading. A random question from a student in the wards often led to an informal lecture of considerable length, delivered with great fluency and rapidity. He was one of the most kindly of colleagues, ever ready to take broad views on matters under discussion, and very tolerant of differences of opinion. Owing possibly to his somewhat retiring disposition, he scarcely attained the professional recognition which his energy and work appeared to merit, but he made many firm friends, and was always ready to advise those who wished for guidance in professional difficulties. Dr. Duffin never married, but devoted his life to the companionship and care of an invalid relative. During the time that he lived in Devonshire-street he was a constant attendant at Holy Trinity Church, Marylebone, being a man of strong religious convictions.

ERNEST MAYNARD PAIN, B.A., M.B., CH.M. SYDNEY.

Dr. E. M. Pain, who died on Feb. 12th at Old Cairo from cerebro-spinal meningitis, was the son of the Bishop of Gippsland, Australia. He was educated at Sydney Grammar School and later at the University of Sydney, where he graduated in Arts and Medicine. He was a successful student, and after qualification he became resident medical officer and then medical superintendent of the Prince Alfred Hospital. In 1902 he joined the ranks of the Church Missionary Society as a medical missionary, and was the first doctor sent out by the New South Wales Church Missionary Association and supported by this body. He was appointed to Old Cairo, where an important medical mission centre had already been established mainly owing to the work of Dr. F. J. Harpur. Dr. Harpur having been appointed to act as an itinerant medical missionary in the Nile Delta, with a house-boat as a floating dispensary, Dr. Pain became the colleague of Dr. F. O. Lasbrey, and together they have brought the Old Cairo Hospital to a high standard of efficiency. Dr. Pain was a capable surgeon and was held in great esteem, not only by his missionary colleagues, but by the medical staff of the Cairo Medical School, who were glad to avail themselves of his services as an examiner. The hospital at Old Cairo is also famous for the treatment of cases of ankylostomiasis, where provision is made for the accommodation of 300 patients at a time suffering from this disease.

The death of Dr. Pain recalls the loss sustained by the Church Missionary Society in March, 1912, by the deaths of Dr. T. L. Pennell and Dr. W. H. Barnett from septic poisoning. Dr. Pain is said to have contracted the disease from which he died owing to a patient coughing in his face, and the attack of cerebro-spinal meningitis was so virulent that he died after an illness of only 24 hours. Such events cannot fail to call forth the sympathy of the profession, not only for the widows and families of these three gifted men, but also for their colleagues, to whom a very serious task is entrusted to carry on their work.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Pasteur Institute in Morocco.

THE Resident-General at Morocco has decided to establish a Pasteur Institute and vaccine farm at Rabat. This new service, which will be under the direction of the native *assistance médicale* at the Residency, will undertake the preparation of vaccine against small-pox and the treatment of rabies and various infectious or epidemic diseases. It will further make all bacteriological analyses and analyses of water, and study ferments both for the public service and for private industrial concerns. Its *personnel* will consist of a medical director, a medical assistant, and two European and two native hospital attendants (*infirmiers*).

Sugar as a Surgical Dressing.

To antiseptic and aseptic dressings and to preservative dressings of serum or sodium bicarbonate, so called because they preserve the integrity of the anatomical cellular elements, must now be added sugar dressings, which not merely preserve the cells, but furnish a nutrient element for them. These dressings have been extensively employed by M. Chevrier. They are used in two ways. Moist dressings consist of 48 per cent. sterilised isotonic solution of glucose in water. The wound is washed with tampons saturated with this solution, and when thoroughly cleansed is covered with silk protective soaked in the same solution. Cotton and a bandage, as in an ordinary dressing, complete the process. No pain is felt after this dressing, and the protective silk does not stick to the wound, so that the dressing is removed painlessly and easily. Compresses may be used in place of the silk. It is, in fact, a simple moist dressing in which the boiled water is replaced with an isotonic glucose solution. A dry dressing is also used. The wound is dusted with powdered glucose and covered with strips of protective silk, having been first cleansed with tampons soaked in hot boiled water. This dressing in certain cases is painful, probably because of an individual susceptibility. In that case some other dressing must be adopted. M. Cocherel, a pupil of M. Chevrier, in renewing the dressings, adopts the following plan with such modifications as may be necessary in individual cases. Infected wounds are dressed daily. When they are practically disinfected they are dressed only every two days. For ulcers two dressings a week suffice for the most part. Glucose apparently favours the granulating and cicatrisation of wounds. It acts best and most rapidly in recent wounds and those not greatly infected. In ulcers in which the process of cicatrisation has failed its action is quite remarkable; in certain cases less so; but it is evident, however, in others in which the trophic degeneration of the ulcerated limb is often considerable. In infected wounds it seems to act slowly at first until disinfection is effected, but then it begins to act with the same rapidity as in uninfected wounds. The wound must first be disinfected with boiled water, and in some cases even with antiseptics, before applying the glucose to the wound. These glucose dressings are simple to prepare, practical, and inexpensive.

Establishment of an Antituberculosis Institute at Rochelle.

Mdlle. Louise Meget has offered to the town of Rochelle the sum of 556,000 francs to found an antituberculosis institute. She has also made a further donation of 50,000 francs for the construction of houses intended for people with large families.

The Treatment of Paludism.

M. David and M. Segal have reported to the Society of Tropical Hygiene and Medicine their results in various forms of paludism, with a serum taken from quininised animals. In all cases an immediate fall of temperature occurred and an apparent cure was effected. Without dwelling for the present on the hypothesis on which this treatment is based the authors feel that the results so far attained justify them in continuing their researches.

Mosquitoes and Water-closets.

At the Society of Tropical Medicine and Hygiene on Jan. 30th M. Wurtz pointed out the important part played by water-closets in the reproduction of mosquitoes. In a

hospital for the aged large numbers of culex appeared periodically. For three years the usual foci of multiplication—reservoirs, spouting, and cisterns—were investigated in vain. The neighbouring sewers which had not been cleansed were then inspected, but no larvæ were found. By chance it was observed that mosquitoes issued in large numbers from the ventilating pipe of one of the water-closets of the hospital, into which the sink and wash water, which was of alkaline reaction, was regularly discharged. Treatment with petroleum immediately put an end to the trouble.

Feb. 24th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Medical Registration in Canada.

THE Medical Council of Canada has been organised with the father of the movement, Dr. T. G. Roddick, Montreal, as its first President, and Dr. R. S. Thornton, Deloraine, Manitoba, Vice-President. Dr. R. W. Powell, Ottawa, was elected to the position of Registrar. All the representatives from the universities, medical councils of the provinces, homœopaths (of whom there are three on the Council), and the representatives of the Governor-General (three—namely, Dr. Roddick, Dr. G. A. Kennedy, MacLeod, Alberta, and Dr. Walter Babty, Victoria, B.C.), with one single exception, were present at the inauguration meeting in Ottawa on Nov. 7th. The meeting was simply for organisation purposes. The next meeting will be held in Ottawa about the time of the meeting of the Canadian Medical Association in London, Ont., when Dr. Powell will assume his duties as Registrar and the Act be put into operation.

Health Conservation in the Far North.

Mr. V. Stefanson, ethnologist, naturalist, and explorer, has lately been in Ottawa interviewing the Federal Government concerning his second exploration trip in the farthest north-west to the "barren lands" of the McKenzie river. He requires six volunteers to spend three years in that unknown part of the world where the temperatures run as low as 70° to 75° below zero. He wants the Ottawa Government to take steps to conserve the 2000 Eskimos of that northern wilderness, as well as the millions of caribou, against "the disastrous effects of civilisation." Towards this end he secured the coöperation of Sir Edmund Osler, chairman of the Public Health Section of the Canadian Conservation Commission. Measles and tuberculosis are the two diseases which are rapidly exterminating the Eskimos of that region. Measles is a comparatively new disease amongst them, and it is said to work like a black plague with them. Mr. Stefanson considers special medical officers or the mounted police should be asked to effect sanitary control, and so combat the spread of the disease by isolation. The exploration work will be north of the present known confines of the Dominion of Canada.

Typhoid Fever in Toronto.

The following are the vital statistics as regards typhoid fever in the city of Toronto in the past decade: In 1902, 130 cases, 25 deaths; 1903, 156 cases, 35 deaths; 1904, 133 cases, 41 deaths; 1905, 197 cases, 45 deaths; 1906, 259 cases, 63 deaths; 1907, 186 cases, 58 deaths; 1908, 201 cases, 60 deaths; 1909, 331 cases, 77 deaths; 1910, 739 cases, 151 deaths; 1911, 520 cases, 81 deaths; 1912, 304 cases, 52 deaths. In the last year at least 17·2 per cent. of the cases were contracted outside the city. The medical officer of health, Dr. Hastings, is of the opinion, from evidence obtained as to cases contracted outside the city on holidays by contact and from milk, and considering the good quality of Toronto's water throughout the year, that scarcely any of the cases in 1912 were derived from the city water. As regards milk-borne infection, 15 cases were traced to one dairy, 4 cases directly to one dairywoman alone, and there were many duplicate cases in the same houses two to four weeks after the first case. There were several small localised outbreaks, possibly due to flies.

Water-supply and Sewage Disposal in Toronto.

On municipal election day in Toronto the ratepayers voted $6,000,000 for a duplicate waterworks system, and of this about $1,000,000 or more were for extending the Island filtration plant, which is the slow-sand process of filtration. The duplicate waterworks system is to be constructed at Scarboro' Heights, a few miles east of the city, where it is proposed that another intake pipe should be laid. Professor Coleman, of the University of Toronto, says that Toronto Island is the result of washings from Scarboro' Heights, the currents in this situation taking a westerly direction. The new trunk sewer, now nearly completed, empties into Lake Ontario, between the city and Scarboro' Heights, and it now seems possible that the outlet of this has been directed in the wrong place and should have been turned west of the city. Also, it has been computed by the Works Commissioner that the filtration plant on Toronto Island leaks to the extent of 6,000,000 gallons per day, although this is not thought possible by the expert sanitary engineer from New York, Mr. Allen Hazen, and his resident engineer at the filtration plant. Whether Toronto will construct an additional filtration plant on Toronto Island by the slow-sand process or inaugurate mechanical filtration is the problem now before the water experts. As yet there has not been much said about treating the sewage before discharging it into Lake Ontario.

Typhoid Fever in Ottawa.

Ottawa had 1000 cases of typhoid fever in the month of August with over 90 deaths. Altogether the epidemic numbered 1500 cases. This was traced to the water-supply. At the municipal elections on the first of the year the ratepayers refused voting money for a filtration plant. As a result of the epidemic a judicial inquiry was held, and the medical officer of health and the city engineer were asked for their resignations. Dr. Hodgetts, of the Canadian Conservation Commission, has been acting as medical officer of health for some months. The city has requested the services of Dr. A. C. Houston, Director of Water Examinations for the Metropolitan Water Board of London, England, to make an examination of the source of supply and report thereon. In the meantime several actio[n] damages have been brought against the corpor[ation] Ottawa in connexion with the outbreak.

Small-pox in the Province of Quebec.

In 1912, to Dec. 20th, there were reported in [the Province] of Quebec 970 cases of small-pox for the [following] months, as follows: July, 106; August, 103; [September,] 63; October, 119; November, 495; and Decem[ber] secretary of the Board of Health states that [there] are only a small percentage of the cases really [reported]; many municipalities in that province refuse to [report] cases of contagious disease. Within the last tw[o] months, however, the Provincial Government has ins[tituted] a new system of district officers of health, and h[opes] better conditions as regards reporting of commun[icable] diseases may be expected.

Feb. 5th.

FOREIGN UNIVERSITY INTELLIGENCE.—*Erlangen:* Dr. Erich Toeniessen has been appointed Senior Physician to the University Medical Clinic.—*Frankfort:* Dr. Edgar Goldsmidt, senior assistant of the Geneva Pathological Institute, has been offered the post of Prosector of the Senkenberg Pathological Institute, in succession to Dr. Reinhardt, who is going to Leipsic.—*Heidelberg:* Dr. Franz Lust has been recognised as *privat-docent* of Pædiatry.—*Königsberg:* Dr. Sinhuber, physician to the Hospital of the Brothers of Charity, has been granted the title of Professor.—*Leipsic:* Dr. Thiemich, of Magdeburg, has been offered the chair of Children's Diseases, in succession to the late Dr. Soltmann. In this case the Government has ignored the choice of the Professorial Senate, which had voted for Professor Finkelstein, of Berlin.—*Lyons:* Dr. B. Moreau, *agrégé*, has been promoted to the chair of Materia Medica and Botany, in succession to Dr. Beauvisage.—*Prague (German University):* Dr. R. Schmidt, professor of medicine in the University of Innsbruck, has been appointed Professor of Medicine and Director of the University Medical Clinic, in succession to the late Dr. Pribram.—*Strasburg:* Dr. Bruno Salge, of the University of Freiburg, has been offered the chair of Children's Diseases, in succession to Dr. A. Czerny.—*Würzburg:* Dr. Karl Wessely, extraordinary professor, has been promoted to the chair of Ophthalmology, with the direction of the Ophthalmological Clinic, in succession to Dr. von Hess. Dr. Feury, *privat-docent* of pharmacology, who is Ph.D. as well as M.D., has been granted a travelling studentship of £72.

THE NATIONAL INSURANCE ACT.

THE ELECTION OF MEDICAL PRACTITIONERS TO THE INSURANCE COMMITTEES.

THE Insurance Commissioners have declared the following Medical Practitioners to have been elected to serve on Insurance Committees in England by the medical practitioners resident in the several areas shown below in accordance with the Regulations made by the Commissioners under Section 59 (2) (c) of the National Insurance Act, 1911.

County Insurance Committees.

County.	Name.	Address.
Bedford	Bone, John Wardle.	39, Castle-street, Luton.
Berkshire... ...	Joy, N. H.	Thurlestone, Bradfield.
	Napier Jones, P.	Duke's Drive, Crowthorne, Berks.
Buckinghamshire	Baker, John Charles.	Ceely House, Aylesbury.
	Dickson, John Dunbar.	Great Marlow, Bucks.
Cambridgeshire	Deighton, Frederick.	St. Bernards, Hills-road, Cambridge.
	Ennion, O. R.	Harlech House, Burwell.
Cheshire	Cooper, Percy Robert.	Glenthorn, The Downs, Bowdon, near Manchester.
	Hughes, John Brierley.	Rue-street, House, Macclesfield.
Cornwall	Permewan, Arthur Edward.	Chapel-street, Redruth.
	Webb, John Eustace.	Kerswell House, Looe.
Cumberland ...	Crerar, John William.	11, High-street, Maryport.
	Fisher, John Bell.	77, Lowther-street, Whitehaven.
Derbyshire ...	Court, Josiah.	Stavely, near Chesterfield.
	Tobin, John Joseph.	Galtee House, Ilkeston.
Devonshire ...	Coombe, Russell.	5, Barnfield-crescent, Exeter.
	Pearson, Ellis.	Strand House, Bideford.
[illegible]tshire ...	Le Fleming, Ernest Kaye.	St. Margarets, Wimborne, Dorset.
	Miller, James.	22, Trinity-road, Weymouth.
[illegible] ...	Todd, D. F.	Beech House, Sunderland.
	Farquharson, Alexander C.	Woodbine House, Bishop Auckland.
	Clowes, Wm. F. A.	St. Johns, Street House, Colchester.
	Salter, John Hy.	Tolleshunt D'Arcy, Witham.
	Conder, Archibald Francis Reignier.	Park Villa, Cheltenham, Gloucestershire.
	Waddy, Henry Edward	Rhossili, Brunswick-road, Gloucester.
	Morris, Edgar Freeman.	134, St. Owen-street, Hereford.
	Williams, Ernest Graham Hamilton.	Seathwaite, Colwall, near Malvern.
	Boyd, Alexander James.	The Manor House, Ware, Herts.
	Fisher, Frederick Chas.	King's Langley, Herts.
[illegible]shire	Grove, William Reginald.	St. Ives, Huntingdonshire.
	Robertson, Alexander Steward.	Elmlea, London-road, Peterborough.
Isle of Ely ...	Meacock, Henry Charles.	13, North Brink, Wisbech.
	Nix, R. E.	Chatteris.
Isle of Wight ...	Davis, James David.	Belmont, George-street, Ryde.
	Wood, George Benington.	Newlands, Sandown.
Kent...	Heggs, Thomas B.	Town Hall, Sittingbourne.
	Potts, George.	3, Marsham-street, Maidstone.
Lancashire ...	Helme, Thomas Arthur.	Mayfield, Victoria Park, Manchester.
	Oldham, Hugh Falconer.	Calton Cottage, Morecambe.
Leicestershire...	Burkitt, John Colly Smyth.	Whitwick, Leicester.
	Harris, George James.	The Green, Anstey, near Leicester.
Lincs., Holland	Perry, Samuel Herbert.	The Master's Lodge, Spalding.
	Wilson, Arthur Edward.	Beech House, Grove-street, Boston.
Lincs., Kesteven	Charles.	Spitalgate House, Grantham.
	Macdonald, John Alexander.	Woolsthorpe-by-Grantham.
Lincs., Lindsey	Behrendt, M. R. J.	175, High-street, Scunthorpe.
	Ffrench, W. J. L.	Barnetby, Lincoln.
London	Turner, Edward Beaton.	31, Sussex-gardens, Hyde Park, W.
	Jones, Evan.	89, Goswell-road, E.C.
Middlesex... ...	French, Geo. W. H.	Sunnybank, 42, Churchlane, Hornsey.
	Lowry, E. W.	53, Kew Bridge-road, Brentford.
Norfolk	Belding, Davy T.	East Dereham.
	Manby, Sir A. R., M.V.O.	East Rudham.
Northamptonshire	Baxter, Stephen Edward.	Woolaston, near Wellingborough.
	Dryland, Leslie Winter.	Orchy Lodge, London-road, Kettering.
Northumberland	Campbell, W. S.	Shellacres, Monkseaton.
	Dickie, Hugh.	Ward House, Morpeth.
Nottinghamshire	Appleby, Frederick Henry.	Barnbygate House, Newark-on-Trent.
	Houfton, Ernest Henry.	Bath House, Mansfield.
Oxfordshire ...	Jones, George Horatio.	Tilbury House, Deddington.
Salop...	Exham, Arthur Richard Frederic.	Brooklyn House, Market Drayton.
	Urwick, Reginald Henry.	1, Council House Court, Shrewsbury.
Soke of Peterborough	Cane, Leonard Buckell.	Minster Precincts, Peterborough.
	Hay, William Peach.	Lincoln-road, Peterborough.
Somerset	Bristowe, Herbert Carpenter.	Wrington, Somerset.
	Temple, George Henry.	Ailanthus, Weston-super-Mare.
Southampton...	Godwin, Herbert James.	The Friary, Southgate-road, Winchester.
	Stephens, Lockhart Edward Walker.	Emsworth, Hants.
Staffordshire ...	Bailey, Thomas Ridley.	Bilston.
	Hodder, Andrew Edward	21, Foregate-street, Stafford.
Suffolk, East ...	Askin, Thomas Cuming	Alderton, Woodbridge, Suffolk.
	Evans, Harold Muir.	The Turret House, Kirkley Cliff-road, Lowestoft.
Suffolk, West...	Batt, Bernard Edward Augustine.	6, Angel-hill, Bury St. Edmunds.
	Wood, Orby Russell Morgan.	Woolpit, near Bury St. Edmunds.
Surrey	Cowie George.	144, Worple-road, Wimbledon.
	Lyndon, Arnold.	Grayshott, Haslemere.
Sussex, East ...	Benham, Chas. Hy.	27, Sackville-road, Hove.
	Young, Bertram, M.	Hassocks Lodge, Hassocks.
Sussex, West ...	Eustace, George Wallace.	Maltravers-street, Arundel.
	Milbank-Smith, Harry James Milbank.	Worthing Lodge, Worthing.
Warwick	Greene, Reginald Latimer.	7, Rother-street, Stratford-on-Avon.
	Relton, Bernard.	Glebe House, Clifton-road, Rugby.
Westmoreland	Cockill, William B.	Lindum Holme, Kendal.
	Haswell, John F.	The Friarage, Penrith.
Wiltshire	Haydon, Thomas Horatio.	High-street, Marlborough, Wiltshire.
Worcestershire	Hawkins, Charles Louis.	Inglewood, Bromsgrove.
	Moore, Harold Ettric.	Oakleigh, Storport.
Yorkshire, East Riding	Soutter, James.	Soutter Gate, Hedon, Hull.
	Gillespie, A.	Sutton-on-Hull.
Yorkshire, North Riding	Baigent, William.	Dunstan House, South Parade, Northallerton.
	Mills, T. I.	The Old Vicarage, Easingwold.
Yorkshire, West Riding	May, R.	Southfield House, Market-street, Wakefield.
	Russell, J.	Rock House, Batley.

County Borough Insurance Committees.

Borough.	Name.	Address.
Barrow-in-Furness	Livingston, John.	Hartington-street, Barrow-in-Furness.
	Reed, John Arthur.	128, Rawlinson-street, Barrow-in-Furness.
Bath	Fraser, Forbes.	2, Circus, Bath.
	Marsh, Charles Alfred.	20, Victoria Buildings, Lower Bristol-road, Bath.
Birkenhead ...	Brewer, Charles Samuel.	7, Park-road East, Birkenhead.
	Grimshaw, John.	2, Hollybank-road, Clifton Park, Birkenhead.
Birmingham ...	Aldren, B. C. R.	42, Bristol-road, Edgbaston.
	Dain, H. G.	Bournbrook House, Selly Oak, Birmingham.
Blackburn ...	Greeves, Francis John.	St. Albans View, Blackburn, Lancs.
	Rigby, Walter.	16, St. Albans-place, Blackburn.
Blackpool ...	Barton, Hy. Thos.	48, Lytham-road, Blackpool.
	Butcher, Thos. Wm.	149, Warbreck-road, Blackpool.
Bolton	Mallet, Frederic Rowland.	Newport House, Bolton.
	Mothersole, Robert Devereux.	128, St. George's-road, Bolton.
Bootle	Macleay, A. R.	Devonshire House, Stanley-road, Bootle.
	Saunders, J. C.	70, Bedford-road, Bootle.

hospital for the aged large numbers of culex appeared periodically. For three years the usual foci of multiplication—reservoirs, spouting, and cisterns—were investigated in vain. The neighbouring sewers which had not been cleansed were then inspected, but no larvæ were found. By chance it was observed that mosquitoes issued in large numbers from the ventilating pipe of one of the water-closets of the hospital, into which the sink and wash water, which was of alkaline reaction, was regularly discharged. Treatment with petroleum immediately put an end to the trouble.

Feb. 24th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Medical Registration in Canada.

THE Medical Council of Canada has been organised with the father of the movement, Dr. T. G. Roddick, Montreal, as its first President, and Dr. R. S. Thornton, Deloraine, Manitoba, Vice-President. Dr. R. W. Powell, Ottawa, was elected to the position of Registrar. All the representatives from the universities, medical councils of the provinces, homœopaths (of whom there are three on the Council), and the representatives of the Governor-General (three—namely, Dr. Roddick, Dr. G. A. Kennedy, MacLeod, Alberta, and Dr. Walter Babty, Victoria, B.C.), with one single exception, were present at the inauguration meeting in Ottawa on Nov. 7th. The meeting was simply for organisation purposes. The next meeting will be held in Ottawa about the time of the meeting of the Canadian Medical Association in London, Ont., when Dr. Powell will assume his duties as Registrar and the Act be put into operation.

Health Conservation in the Far North.

Mr. V. Stefanson, ethnologist, naturalist, and explorer, has lately been in Ottawa interviewing the Federal Government concerning his second exploration trip in the farthest north-west to the "barren lands" of the McKenzie river. He requires six volunteers to spend three years in that unknown part of the world where the temperatures run as low as 70° to 75° below zero. He wants the Ottawa Government to take steps to conserve the 2000 Eskimos of that northern wilderness, as well as the millions of caribou, against "the disastrous effects of civilisation." Towards this end he secured the coöperation of Sir Edmund Osler, chairman of the Public Health Section of the Canadian Conservation Commission. Measles and tuberculosis are the two diseases which are rapidly exterminating the Eskimos of that region. Measles is a comparatively new disease amongst them, and it is said to work like a black plague with them. Mr. Stefanson considers special medical officers or the mounted police should be asked to effect sanitary control, and so combat the spread of the disease by isolation. The exploration work will be north of the present known confines of the Dominion of Canada.

Typhoid Fever in Toronto.

The following are the vital statistics as regards typhoid fever in the city of Toronto in the past decade: In 1902, 130 cases, 25 deaths; 1903, 156 cases, 35 deaths; 1904, 133 cases, 41 deaths; 1905, 197 cases, 45 deaths; 1906, 259 cases, 63 deaths; 1907, 186 cases, 58 deaths; 1908, 201 cases, 60 deaths; 1909, 331 cases, 77 deaths; 1910, 739 cases, 151 deaths; 1911, 520 cases, 81 deaths; 1912, 304 cases, 52 deaths. In the last year at least 17·2 per cent. of the cases were contracted outside the city. The medical officer of health, Dr. Hastings, is of the opinion, from evidence obtained as to cases contracted outside the city on holidays by contact and from milk, and considering the good quality of Toronto's water throughout the year, that scarcely any of the cases in 1912 were derived from the city water. As regards milk-borne infection, 15 cases were traced to one dairy, 4 cases directly to one dairywoman alone, and there were many duplicate cases in the same houses two to four weeks after the first case. There were several small localised outbreaks, possibly due to flies.

Water-supply and Sewage Disposal in Toronto.

On municipal election day in Toronto the ratepayers voted $6,000,000 for a duplicate waterworks system, and of this about $1,000,000 or more were for extending the Island filtration plant, which is the slow-sand process of filtration. The duplicate waterworks system is to be constructed at Scarboro' Heights, a few miles east of the city, where it is proposed that another intake pipe should be laid. Professor Coleman, of the University of Toronto, says that Toronto Island is the result of washings from Scarboro' Heights, the currents in this situation taking a westerly direction. The new trunk sewer, now nearly completed, empties into Lake Ontario, between the city and Scarboro' Heights, and it now seems possible that the outlet of this has been directed in the wrong place and should have been turned west of the city. Also, it has been computed by the Works Commissioner that the filtration plant on Toronto Island leaks to the extent of 6,000,000 gallons per day, although this is not thought possible by the expert sanitary engineer from New York, Mr. Allen Hazen, and his resident engineer at the filtration plant. Whether Toronto will construct an additional filtration plant on Toronto Island by the slow-sand process or inaugurate mechanical filtration is the problem now before the water experts. As yet there has not been much said about treating the sewage before discharging it into Lake Ontario.

Typhoid Fever in Ottawa.

Ottawa had 1000 cases of typhoid fever in the month of August with over 90 deaths. Altogether the epidemic numbered 1500 cases. This was traced to the water-supply. At the municipal elections on the first of the year the ratepayers refused voting money for a filtration plant. As a result of the epidemic a judicial inquiry was held, and the medical officer of health and the city engineer were asked for their resignations. Dr. Hodgetts, of the Canadian Conservation Commission, has been acting as medical officer of health for some months. The city has requested the services of Dr. A. C. Houston, Director of Water Examinations for the Metropolitan Water Board of London, England, to make an examination of the source of supply and to report thereon. In the meantime several actions for damages have been brought against the corporation of Ottawa in connexion with the outbreak.

Small-pox in the Province of Quebec.

In 1912, to Dec. 20th, there were reported in the Province of Quebec 970 cases of small-pox for the previous six months, as follows: July, 106; August, 103; September, 63; October, 119; November, 495; and December, 84. The secretary of the Board of Health states that these figures are only a small percentage of the cases really occurring, as many municipalities in that province refuse to report their cases of contagious disease. Within the last two or three months, however, the Provincial Government has inaugurated a new system of district officers of health, and hereafter better conditions as regards reporting of communicable diseases may be expected.

Feb. 5th.

FOREIGN UNIVERSITY INTELLIGENCE.—*Erlangen:* Dr. Erich Toeniessen has been appointed Senior Physician to the University Medical Clinic.—*Frankfort:* Dr. Edgar Goldsmidt, senior assistant of the Geneva Pathological Institute, has been offered the post of Prosector of the Senkenberg Pathological Institute, in succession to Dr. Reinhardt, who is going to Leipsic.—*Heidelberg:* Dr. Franz Lust has been recognised as *privat-docent* of Pædiatry.—*Königsberg:* Dr. Sinhuber, physician to the Hospital of the Brothers of Charity, has been granted the title of Professor.—*Leipsic:* Dr. Thiemich, of Magdeburg, has been offered the chair of Children's Diseases, in succession to the late Dr. Soltmann. In this case the Government has ignored the choice of the Professorial Senate, which had voted for Professor Finkelstein, of Berlin.—*Lyons:* Dr. B. Moreau, *agrégé*, has been promoted to the chair of Materia Medica and Botany, in succession to Dr. Beauvisage.—*Prague (German University):* Dr. R. Schmidt, professor of medicine in the University of Innsbruck, has been appointed Professor of Medicine and Director of the University Medical Clinic, in succession to the late Dr. Pribram.—*Strasburg:* Dr. Bruno Salge, of the University of Freiburg, has been offered the chair of Children's Diseases, in succession to Dr. A. Czerny.—*Würzburg:* Dr. Karl Wessely, extraordinary professor, has been promoted to the chair of Ophthalmology, with the direction of the Ophthalmological Clinic, in succession to Dr. von Hess. Dr. Feury, *privat-docent* of pharmacology, who is Ph.D. as well as M.D., has been granted a travelling studentship of £72.

THE NATIONAL INSURANCE ACT.

THE ELECTION OF MEDICAL PRACTITIONERS TO THE INSURANCE COMMITTEES.

THE Insurance Commissioners have declared the following Medical Practitioners to have been elected to serve on Insurance Committees in England by the medical practitioners resident in the several areas shown below in accordance with the Regulations made by the Commissioners under Section 59 (2) (c) of the National Insurance Act, 1911.

County Insurance Committees.

County.	Name.	Address.
Bedford	Bone, John Wardle.	39, Castle-street, Luton.
Berkshire... ...	Joy, N. H.	Thurlestone, Bradfield.
	Napier Jones, P.	Duke's Drive, Crowthorne, Berks.
Buckinghamshire	Baker, John Charles.	Ceely House, Aylesbury.
	Dickson, John Dunbar.	Great Marlow, Bucks.
Cambridgeshire	Deighton, Frederick.	St. Bernards, Hills-road, Cambridge.
	Ennion, O. R.	Harlech House, Burwell.
Cheshire	Cooper, Percy Robert.	Glenthorn, The Downs, Bowdon, near Manchester.
	Hughes, John Brierley.	Rue-street, House, Macclesfield.
Cornwall	Permewan, Arthur Edward.	Chapel-street, Redruth.
	Webb, John Eustace.	Kerswell House, Looe.
Cumberland ...	Crerar, John William.	11, High-street, Maryport.
	Fisher, John Bell.	77, Lowther-street, Whitehaven.
Derbyshire ...	Court, Josiah.	Tavely, near Chesterfield.
	Tobin, John Joseph.	Galtee House, Ilkeston.
Devonshire ...	Coombe, Russell.	5, Barnfield-crescent, Exeter.
	Pearson, Ellis.	Strand House, Bideford.
Dorsetshire ...	Le Fleming, Ernest Kaye.	St. Margarets, Wimborne, Dorset.
	Miller, James.	22, Trinity-road, Weymouth.
Durham	Todd, D. F.	Beech House, Sunderland.
	Farquharson, Alexander C.	Woodbine House, Bishop Auckland.
Essex	Clowes, Wm. F. A.	St. Johns, Street House, Colchester.
	Salter, John Hy.	Tolleshunt D'Arcy, Witham.
Gloucestershire	Conder, Archibald Francis Reignier.	Park Villa, Cheltenham, Gloucestershire.
	Waddy, Henry Edward	Rhossili, Brunswick-road, Gloucester.
Herefordshire...	Morris, Edgar Freeman.	134, St. Owen-street, Hereford.
	Williams, Ernest Graham Hamilton.	Seathwaite, Colwall, near Malvern.
Hertfordshire...	Boyd, Alexander James.	The Manor House, Ware, Herts.
	Fisher, Frederick Chas.	King's Langley, Herts.
Huntingdonshire	Grove, William Reginald.	St. Ives, Huntingdonshire.
	Robertson, Alexander Steward.	Elmlea, London-road, Peterborough.
Isle of Ely ...	Meacock, Henry Charles.	13, North Brink, Wisbech.
	Nix, R. E.	Chatteris.
Isle of Wight ...	Davis, James David.	Belmont, George-street, Ryde.
	Wood, George Benington.	Newlands, Sandown.
Kent...	Heggs, Thomas B.	Town Hall, Sittingbourne.
	Potts, George.	3, Marsham-street, Maidstone.
Lancashire ...	Helme, Thomas Arthur.	Mayfield, Victoria Park, Manchester.
	Oldham, Hugh Falconer.	Calton Cottage, Morecambe.
Leicestershire...	Burkitt, John Colly Smyth.	Whitwick, Leicester.
	Harris, George James.	The Green, Anstey, near Leicester.
Lincs., Holland	Perry, Samuel Herbert.	The Master's Lodge, Spalding.
	Wilson, Arthur Edward.	Beech House, Grove-street, Boston.
Lincs., Kesteven	Charles.	Spitalgate House, Grantham.
	Macdonald, John Alexander.	Woolsthorpe-by-Grantham.
Lincs., Lindsey	Behrendt, M. R. J.	175, High-street, Scunthorpe.
	Ffrench, W. J. L.	Barnetby, Lincoln.
London	Turner, Edward Beaton.	31, Sussex-gardens, Hyde Park, W.
	Jones, Evan.	89, Goswell-road, E.C.
Middlesex... ...	French, Geo. W. H.	Sunnybank, 42, Churchlane, Hornsey.
	Lowry, E. W.	53, Kew Bridge-road, Brentford.
Norfolk	Belding, Davy T.	East Dereham.
	Manby, Sir A. R., M.V.O.	East Rudham.

County Insurance committees—(Continued).

County.	Name.	Address.
Northamptonshire	Baxter, Stephen Edward.	Woolaston, near Wellingborough.
	Dryland, Leslie Winter.	Orchy Lodge, London-road, Kettering.
Northumberland	Campbell, W. S.	Shellacres, Monkseaton.
	Dickie, Hugh.	Ward House, Morpeth.
Nottinghamshire	Appleby, Frederick Henry.	Barnbygate House, Newark-on-Trent.
	Houfton, Ernest Henry.	Bath House, Mansfield.
Oxfordshire ...	Jones, George Horatio.	Tilbury House, Deddington.
Salop	Exham, Arthur Richard Frederic.	Brooklyn House, Market Drayton.
	Urwick, Reginald Henry.	1, Council House Court, Shrewsbury.
Soke of Peterborough	Cane, Leonard Buckell.	Minster Precincts, Peterborough.
	Hay, William Peach.	Lincoln-road, Peterborough.
Somerset	Bristowe, Herbert Carpenter.	Wrington, Somerset.
	Temple, George Henry.	Ailanthus, Weston-super-Mare.
Southampton ...	Godwin, Herbert James.	The Friary, Southgate-road, Winchester.
	Stephens, Lockhart Edward Walker.	Emsworth, Hants.
Staffordshire ...	Bailey, Thomas Ridley.	Bilston.
	Hodder, Andrew Edward	21, Foregate-street, Stafford.
Suffolk, East ...	Askin, Thomas Cuming	Alderton, Woodbridge, Suffolk.
	Evans, Harold Muir.	The Turret House, Kirkley Cliff-road, Lowestoft.
Suffolk, West ...	Batt, Bernard Edward Augustine.	6, Angel-hill, Bury St. Edmunds.
	Wood, Orby Russell Morgan.	Woolpit, near Bury St. Edmunds.
Surrey	Cowie George.	144, Worple-road, Wimbledon.
	Lyndon, Arnold.	Grayshott, Haslemere.
Sussex, East ...	Benham, Chas. Hy.	27, Sackville-road, Hove.
	Young, Bertram, M.	Hassocks Lodge, Hassocks.
Sussex, West ...	Eustace, George Wallace.	Maltravers-street, Arundel.
	Milbank-Smith, Harry James Milbank.	Worthing Lodge, Worthing.
Warwick	Greene, Reginald Latimer.	7, Rother-street, Stratford-on-Avon.
	Relton, Bernard.	Glebe House, Clifton-road, Rugby.
Westmoreland	Cockill, William B.	Lindum Holme, Kendal.
	Haswell, John F.	The Friarage, Penrith.
Wiltshire	Haydon, Thomas Horatio.	High-street, Marlborough, Wiltshire.
Worcestershire	Hawkins, Charles Louis.	Inglewood, Bromsgrove.
	Moore, Harold Ettric.	Oakleigh, Storport.
Yorkshire, East Riding	Soutter, James.	Soutter Gate, Hedon, Hull.
	Gillespie, A.	Sutton-on-Hull.
Yorkshire, North Riding	Baigent, William.	Dunstan House, South Parade, Northallerton.
	Mills, T. I.	The Old Vicarage, Easingwold.
Yorkshire, West Riding	May, R.	Southfield House, Market-street, Wakefield.
	Russell, J.	Rock House, Batley.

County Borough Insurance Committees.

Borough.	Name.	Address.
Barrow-in-Furness	Livingston, John.	Hartington-street, Barrow-in-Furness.
	Reed, John Arthur.	128, Rawlinson-street, Barrow-in-Furness.
Bath	Fraser, Forbes.	2, Circus, Bath.
	Marsh, Charles Alfred.	20, Victoria Buildings, Lower Bristol-road, Bath.
Birkenhead ...	Brewer, Charles Samuel.	7, Park-road East, Birkenhead.
	Grimshaw, John.	2, Hollybank-road, Clifton Park, Birkenhead.
Birmingham ...	Aldren, B. C. R.	42, Bristol-road, Edgbaston.
	Dain, H. G.	Bournbrook House, Selly Oak, Birmingham.
Blackburn ...	Greeves, Francis John.	St. Albans View, Blackburn, Lancs.
	Rigby, Walter.	16, St. Albans-place, Blackburn.
Blackpool ...	Barton, Hy. Thos.	48, Lytham-road, Blackpool.
	Butcher, Thos. Wm.	149, Warbreck-road, Blackpool.
Bolton	Mallet, Frederic Rowland.	Newport House, Bolton.
	Mothersole, Robert Devereux.	128, St. George's-road, Bolton.
Bootle	Macleay, A. R.	Devonshire House, Stanley-road, Bootle.
	Saunders, J. C.	70, Bedford-road, Bootle.

County Borough Insurance Committees—(continued).

Borough.	Name.	Address.
Bournemouth...	Davidson, William.	Cairnbrogie, 91, Wimborne-road, Bournemouth.
	Vernon, Arthur Heygate.	Drayton, Christchurch-road, Boscombe, Bournemouth.
Bradford	Allan, John F.	39, Whetley-lane, Bradford.
	Shackleton, Herbert.	9, Bampton-place, Bradford.
Brighton	Fothergill, E. R.	38, Dyke-road, Brighton.
	Jacomb-Hood, C. J.	8, St. George's-place, Brighton.
Bristol	Moore, Leonard Augustine.	45, Ashley-road, Bristol.
	Wallace, James Williamson.	1, Greville-road, Southville, Bristol.
Burnley	Scott, Thomas Marshall.	Thursby-square, Burnley.
	Robinson, Henry James.	Springfield House, Burnley.
Burton-on-Trent	Stack, Edward Churchill.	181, High-street, Burton-on-Trent.
	Thompson, Charles.	361, Rosliston-road, Stapenhill, Burton-on-Trent.
Chester	Rutherfoord, H. E.	8, Abbey-square, Chester.
Coventry	Hawley, Arthur.	Hazelbeech, Eaton-road, Coventry.
	Lowman, William Henville.	Norton House, Bird-street, Coventry.
Croydon	Wayte, John.	65, Park-lane, Croydon.
	Willock, Edward Hulse.	91, London-road, Croydon.
Derby...	Barber, Hugh.	45, Friargate, Derby.
	Smiley, George Kennedy.	112, Kedleston-road, Derby.
Devonport ...	McCulloch, Edward.	4, Clarendon-terrace, Stoke, Devonport.
Dudley	Higgs, Thomas Frederic.	Beaconsfield House, High-street, Dudley.
	Messiter, Matthew Arden.	Dudley, Worcestershire.
Eastbourne ...	Ewart, John Henry.	13, Devonshire-place, Eastbourne.
	Smith, William Muir.	"Riversdale," 8, Upperton-road, Eastbourne.
Exeter	Coombes, Russell.	5, Barnfield-crescent, Exeter.
	Steele-Perkins, John Shirley.	Westacott, The Barnfield, Exeter.
Gateshead	Stewart, Charles Ravenscroft.	173, Whitehall-road, Gateshead.
	Durant, William James.	The Crossways, Durham-road, Gateshead.
Gloucester ...	Goss, John.	Elmlea, London-road, Gloucester.
	Finlay, Douglas Edward.	Wells Dene, Park-road, Gloucester.
Great Yarmouth	Gilmour, P. G.	The Grove, Gorleston-on-Sea.
	Potts, H.	32, Princes-road, Great Yarmouth.
Grimsby	Bruce, John.	Lauriston, Town Hall-square, Grimsby.
	Rowell, William Henry.	Belvedere, Welholme-road, Grimsby.
Halifax	Drury, Arthur.	Landon House, Halifax.
	Steel, Percy Kingsley.	10, Lord-street, Halifax.
Huddersfield ...	McCully, Andrew Lowry.	51, New North-road, Huddersfield.
	Tansley, Harold Glendower.	121, Thornton-road, Huddersfield.
Ipswich	Heath, Harry Llewellyn.	65, Fonnereau-road, Ipswich.
	Young, Allistair Cameron.	Brightwell, Woodbridge-road, Ipswich.
Kingston-on-Hull	Divine, John.	St. Mungo's, Holderness-road, Hull.
	Milburn, Chas. Henry.	158, Anlaby-road, Hull.
Leeds...	Bell, Thomas D.	13, St. Mark's-terrace, Woodhouse, Leeds.
	Ewing, James.	11, Blenheim-terrace, Leeds.
Leicester	Henry Robert Wallace Wesley.	6, Market-street, Leicester.
	Holmes, William Moffatt.	"Limeleigh," 169, Narborough-road, Leicester.
Lincoln	Daman, Thos. Walter Alfred.	Minster Yard, Lincoln.
	Lambert, Frederick Samuel.	Fairfield House, Newland, Lincoln.
Liverpool... ...	Bennett, W. B.	2, Ashfield-road, Algburth, Liverpool.
	Larkin, F. C.	54, Rodney-street, Liverpool.
Manchester ...	Helme, T. A.	Mayfield, Victoria Park, Manchester.
	McGowan. R. G.	1, Thomas-street, Cheetham Hill.
Middlesbrough	Donaldson, James.	65, Grange-road, West Middlesbrough.
	Jackson, Herbert William.	3, Cumberland Villas, Borough-road, Middlesbrough.
Newcastle-on-Tyne	Russell, Frank.	41, Heaton-road, Newcastle-on-Tyne.
	Rutter, Hubert Llewellyn.	31, West-parade, Newcastle-on-Tyne.
Northampton...	Cropley, Henry.	5, East Park-parade, Northampton.
	Percival, George Henry.	66, Abington-street, Northampton.

County Borough Insurance Committee—(continued).

County.	Name.	Address.
Norwich	Bremner, J. M.	18, St. Giles-street, Norwich.
	Crook, A.	100, Prince of Wales-road, Norwich.
Nottingham ...	Charlton, Alfred.	"Glendarroch," Lenton, Nottingham.
	Fulton, Adam.	"Armoy," Old Basford, Nottingham.
Oldham	Henderson, Robert George.	116, Egerton-street, Oldham.
	Pochin, Fred. Linney.	Park House, Werneth.
Oxford	Higgs, Ernest William Mules.	88, James-street, Oxford.
Plymouth ...	Wagner, Richard Henry.	8, Boon's-place, Plymouth.
	Simpson, Robert.	1, Queen Ann-terrace, Plymouth.
Portsmouth ...	Milne-Thomson, Alexander.	32, Lion-terrace, Portsea.
	Wright, Alfred Bosworth.	Lymington Lodge, 24, Clarendon-road, Southsea, Hants.
Preston	Moony, Alexander Patrick.	25B, Winkley-square, Preston.
	Pimblett, William Henry.	2, Bow-lane, Fishergate-hill, Preston.
Reading	Holden, George Herbert Rose.	168, Castle-hill, Reading.
	Rowland, Edwin Walter Spenser.	317, Oxford-road, Reading.
Rochdale	Bateman, W. H.	Daisy Bank, Spotland-road, Rochdale.
	Carse, W. H.	Spotland Bridge, Rochdale.
Rotherham ...	Pickin, James.	Glengarn, Doncaster-road, Rotherham.
	Slack, Percy.	East Bank, Nelson-street, Rotherham.
St. Helens ...	Graham, Andrew.	Ardgowan, Thatto Heath, St. Helens.
	Unsworth, Joseph.	38, North-road, St. Helens.
Salford	Garrard, Charles Roland Ordish.	30, Broad-street, Pendleton.
	Hodgson, Stanley.	The Crescent, Salford.
Sheffield	Forbes, A.	199, Greaves-st., Sheffield.
	Sorley, J.	249, Pitsmoor-road, Sheffield.
Southampton...	Aldridge, Norman Elliott.	7, Cumberland-place, Southampton.
	Saunders, Chas. Howard.	"Cabra," Shirley Avenue, Southampton.
Southport ...	Littler, Robert Meredith.	54, Hoghton-street, Southport.
	Penrose, George Rooke.	43, Hoghton-st., Southport.
South Shields...	Gowans, W.	Westoe, South Shields.
	McNab, L.	21, Westoe-road, South Shields.
Stockport... ...	Goulden, Edmund Albert.	Greek-street, Stockport.
	Marriott, Hyde.	The Limes, Hall-street, Stockport.
Stoke-on-Trent.	Day, George.	Eastwood Lodge, Lichfield, Hanley.
	Russell, John.	Bleak Hill House, Burslem.
Sunderland ...	Dix, jun., Richard Henry.	70, Otto-terrace, Durham-road, Sunderland.
	Wallace, Herbert Kidson.	12, Green-terrace, Sunderland.
Tynemouth ...	Harrison, James.	33, Howard-street, North Shields.
	Mears, Frederick Charles.	13, Windsor-gardens, North Shields.
Walsall	Hawley, Sidney Herbert.	131, Lichfield-street, Walsall.
	Martin, Arthur James.	The Cottage, Mill-lane, Bloxwich, Staffs.
Warrington ...	Fox, Edward Joseph.	12, Rylands-st., Warrington.
	Naden, John Bassett.	111, Liverpool-road, Warrington.
West Bromwich	Morris, Henry Gibbins.	Fircroft, West Bromwich.
	Plummer, Harry Beddoes Wetherell.	54, Birmingham-road, West Bromwich.
West Ham ...	Beadles, Harold Stratford.	234, Barking-road, Canning Town.
	Dayus, Frederick Herbert.	229, Romford-road, Forest Gate, E.
West Hartlepool	Davis, Edwin Harry.	Gower-st., West Hartlepool.
	Gray, William.	Victoria-road, West Hartlepool.
Wigan	Angior, Thomas Matthews.	Standish Gate House, Wigan.
	Blair, John.	Bidston House, Upper Dicconson-street, Wigan.
Wolverhampton	Craig, Thomas Connell.	82, Tettenhall-road, Wolverhamptom.
	Mactier, Henry Carter.	33, Tettenhall-road, Wolverhampton.
Worcester ...	Coombs, Samuel Wellesley.	20, Foregate-street, Worcester.
	Crowe, George Wyndham.	43, Foregate-street, Worcester.
York	Craig, John Gibson.	78, Bootham, York.
	Evelyn, William Arthur.	33, Bootham, York.

From the NATIONAL HEALTH INSURANCE COMMISSION (ENGLAND) Buckingham Gate, London, S.W.

INSURED PERSONS AND CONTRACTING OUT.

With regard to applications under Section 15 (3) of the National Insurance Act from insured persons desirous of making their own arrangements for medical attendance and treatment, the Insurance Commissioners have issued a memorandum for the guidance of Insurance Committees in dealing with such applications. The memorandum points out that the Act does not contemplate arrangements under Section 15 (3) as an alternative to the normal panel system, but only as a provision to meet the exceptional cases of insured persons for whom, owing to their individual circumstances or to the circumstances of their occupation, special arrangements are more suitable than the arrangements made by the Committee. In considering such applications from insured persons Insurance Committees are recommended to have regard not only to the special circumstances of each case but also to the effect of their decision upon the general arrangements for the administration of medical benefit in their area. The following are suggested as special circumstances within the intention of the Act:—

(*a*) Special disabilities arising out of the nature of the occupation which prevent the insured person from getting full advantage from the panel system (e.g., commercial travellers, actors);
(*b*) Special advantages arising out of the nature of the occupation which enable insured persons to obtain a more convenient or more extensive medical service than that provided by the panel system (e.g., nurses, hospital and asylum staffs);
(*c*) Circumstances in which the insured person desires a particular system of treatment not undertaken by doctors on the panel.

Special discrimination must be exercised in dealing with applications from insured persons desiring to obtain medical attendance and treatment from a particular practitioner who is not on the panel. The Commissioners consider that some of the cases in which applications are made under Section 15 (3) can be more suitably met by the Committee allowing the doctor whose services are desired to come on the panel for a limited number of insured persons or for particular insured persons only, as, for instance, in certain cases of domestic servants desiring to be attended by the doctor who attends the household. But this should only be done where the Committee have carefully satisfied themselves (1) that provision has already been made for all insured persons; (2) that the other doctors on the panel agree to the proposed arrangement; and (3) that the arrangement will not, at all events without the consent of the other doctors on the panel, result in the doctor who is admitted to the panel on these terms having on his list an undue proportion of selected lives.

With regard to the majority of applications received from persons desiring to obtain medical attendance from a practitioner not on the panel, the memorandum reminds the Committees that an attempt has been made by a section of the medical profession in certain districts to utilise the provisions of Section 15 (3) for the purpose of setting up an alternative service in substitution for the normal system contemplated by Subsection 2. This, it proceeds, would defeat the clear intention of the Act, which is that medical benefit should be administered by the Insurance Committee, and that the doctors who attend insured persons should as a rule do so under the arrangements made by the Committee and not under private arrangements made with the insured persons directly: if a medical practitioner is prepared to attend any substantial number of insured persons, the proper course is for him to come on the panel. On the other hand, it is admitted that there will doubtless be isolated cases in which the insured person desires to be attended by a practitioner who does not ordinarily undertake practice among the insured class and whose ordinary fees are possibly on a higher scale than the amount available from the Medical Benefit Fund would afford. Cases may also arise in which an insured woman desires to be attended by a practitioner of her own sex, and is willing, if necessary, to pay more than the ordinary rate of remuneration. Such cases as these are considered to fall within the class for which Subsection 3 was intended to provide. But before granting the application the Committees are instructed to ascertain that the insured person fully recognises and accepts the liability for any excess of the doctor's charges beyond the amount which the Committee would be able to contribute.

In order to bring to the notice of applicants, as well as of medical practitioners with whom they desire to make special arrangements, the conditions which must be complied with, and to enable the Committee at the same time to satisfy themselves both as to the presence of special circumstances and as to the efficiency of the service arranged for, the Commissioners have prepared a model form $\left(\frac{43}{\text{I.C.}}\right)$ for the convenience of the Committee. This form provides for a statement by the applicant of the special circumstances which prompt him to make application, and for an undertaking by the practitioner by whom he proposes to be attended that the necessary conditions will be observed. In the case, however, of persons who by reason of their occupation change their residence at such frequent intervals that they are unable to make arrangements with any single doctor, this form will be inapplicable. A further form $\left(\frac{43A}{\text{I.C.}}\right)$ has been prepared for issue in these special cases by the Committee to the applicant when they notify him of their consent to his application, and is intended to enable the insured person both to account to the Committee for the expenditure to which a contribution is desired, and at the same time to satisfy them that the necessary conditions have been complied with. To meet the case of nurses or other insured persons employed in a hospital or similar institution to whom treatment would normally be given by doctors on the staff a further form of application $\left(\frac{43B}{\text{I.C.}}\right)$ has been prepared. This provides for a collective application over the individual signatures of all the applicants, and for a general undertaking by the institution itself to comply with the necessary conditions of contribution by the Committee.

The memorandum points out that by the Regulations no insured person can make an inclusive contract to the expense of which the Committee would contribute for medical attendance and medicines with a doctor; and that for this reason inclusive contracts must necessarily be made with some intermediate person or body by whom both doctor and dispenser are employed. The position of a hospital or asylum, however, as employing doctors and dispensers, enables it to make inclusive contracts with insured persons upon its staff; and, if this course is followed, the Insurance Committee will be enabled to make a contribution to the expense incurred by the insured person under such contract. The memorandum concludes with the information that it would be possible to arrange for hospital employees to be treated by the doctors on the staff otherwise than under the provisions of Section 15 (3) of the Act, if the doctors on the panel consented to the hospital doctors being placed on the panel for the treatment of insured members of the staff only.

Questions for the Insured.

Insured persons desiring to be allowed to make their own arrangements for medical attendance and treatment, as stated above, will have to answer certain questions and obtain their medical attendant's signature to an undertaking. The questions are as follows:—

1. What are the special circumstances which cause you to desire to make your own arrangements for medical attendance and treatment, instead of receiving medical benefit under the arrangements made by the Insurance Committee?
2. By what doctor do you desire to be attended?
3. Has he attended you or your family previously? If so, for how long?
4. If you do not wish to arrange with a particular doctor, what arrangements do you desire to make?

Undertaking to be Signed by the Practitioner.

The medical practitioner for his part will be required to undertake, in writing, to give to each insured person making a private arrangement with him medical attendance and treatment not inferior in nature, quality, or extent to that provided under the arrangements made by the Insurance Committee, and to comply in other respects with any conditions which, by reason of any scheme for the distribution of Parliamentary grant, must be complied with in the case of treatment provided otherwise. These will include:—

(1) The keeping and furnishing of records, in the form prescribed by the Insurance Commissioners, of the diseases of the insured person attended, and of any treatment of him, and of such further records as may at any subsequent time be agreed between the Insurance Committee and the Local Medical Committee;

(2) the furnishing, at the request of the insured person, of such certificates as are required to be furnished by him for the purposes of the National Insurance Act in connexion with any claim for sickness or disablement benefit made by him in pursuance of the rules of the

society of which he is a member, or of the Committee, as the case may be; and

(3) the giving of any domiciliary treatment which may be required in the event of the insured person being recommended for sanatorium benefit.

The practitioner must further agree to give reasonable facilities to enable the Insurance Committee or the Insurance Commissioners to satisfy themselves that the above conditions are being duly carried out in order that the insured person may be entitled to receive from the Insurance Committee a contribution towards the cost of the attendance and treatment given by him. He must also inform the Committee whether his remuneration for treatment of the insured person under the arrangement made with him (*a*) will be calculated at a given rate per quarter, or (*b*) on the basis of fees per attendance. If the former, the rate must be stated; if the latter, the scale must be set out in detail under eight headings, and a quarterly statement of attendances and treatment must be furnished under those heads.

It will be a condition of any contribution by the Insurance Committee towards the cost of the insured person's treatment that the practitioner complies with the terms of this undertaking.

Contributions Towards the Cost of Contracting Out.

The amount which an insured person can thus obtain as a contribution from the Insurance Committee towards the cost of his attendance and treatment is strictly limited. Sums not exceeding in the aggregate what it would have cost the Committee to provide medical benefit for all the insured persons in their area required or allowed to make their own arrangements will be carried annually to a fund called the Special Arrangements Fund, and the amount which can be contributed towards the cost of medical attendance and treatment including medicines and appliances of all insured persons in the area making their own arrangements cannot exceed the amount of this fund, plus a sum equivalent to 6*d.* per head of all such insured persons in respect of the domiciliary treatment of tuberculosis. Contributions towards the cost of obtaining medicines and appliances will be considered separately from contributions towards the cost of obtaining medical attendance and treatment. No contributions can be made by the Insurance Committee towards the cost of medicines and appliances supplied by or at the profit of the doctor undertaking the treatment of the insured person except in the following cases:—

(*a*) If the medicine is a medicine which is ordinarily administered by the doctor to the person, or if the medicine or appliance is required immediately or before a supply can conveniently be obtained from the chemist.

(*b*) If the insured person is living in the country at a distance of more than one mile from a chemist, or if, owing to special difficulties of communication, the insured person has received permission from the Insurance Committee to obtain medicines and appliances from the doctor attending him.

If the doctor enters into a contract to give medical attendance and treatment (excluding medicines and appliances) for a fixed sum, the Insurance Committee will contribute a sum not exceeding the amount agreed to be paid under the contract and not exceeding thirteen-seventeenths, or, if the Commissioners so allow, fourteen-seventeenths, of the aggregate amount of the Special Arrangements Fund divided by the total number of persons making their own arrangements, plus a proportion of the sum set aside in respect of the domiciliary treatment of tuberculosis. If the arrangement made with the doctor is for payment by the insured person of fees per attendance in respect of services actually rendered, the insured person will be required to submit a detailed account of the services rendered and the charges incurred, and the amount expended by the insured person will then be calculated in accordance with the scale of fees fixed by the Committee applying to all persons in its area who make their own arrangements in this way. The bills of the doctors calculated on this scale will be paid in full if the total amount of the bills does not exceed the total amount available in the pool. If the total amount of the bills exceeds the total amount in the pool, the bills will be paid so far as the pool permits, the same proportion being paid on each bill, and the insured person, in the absence of any special arrangements to the contrary, will be liable to the doctor for the payment of the balance.

In the exceptional circumstances in which a contribution can be made towards the cost of drugs supplied by the doctor the arrangement will be made by the patient with him for including the supply of drugs in the contract, if the arrangement be on the contract basis, or for his charging in his account for medicines actually supplied, and payment will be made in accordance with the same principle as in cases where the doctor provides medical attendance and treatment only. In the cases in which the doctor does not supply medicines or appliances the insured person will present to the Committee the chemist's account, and the Committee will contribute to the cost so far as the amount available in the appropriate pool permits, and if the aggregate accounts exceed the total amount in the pool the same proportion will be paid on each.

MEDICAL MEN AND THE LONDON COUNTY COUNCIL ELECTION.

Dr. M. MACNAUGHTON-JONES, junior, writes as follows:—

"The London Medical Committee are anxious to assist in securing the return of certain candidates in each constituency at the approaching L.C.C. election. The present position of the profession is partly due to the slight value attached to the votes of medical men which, even if unanimous, would seldom affect the result of an election. If, however, the profession enter with enthusiasm into the campaign outlined below, it would be difficult to over-estimate the services it can render. The value of its support or opposition would become proportionately enhanced, and its power of determining the conditions of service laid down under any amending Act increased.

"It is suggested that every day during the contest, in such spare time as they may have, medical men should attend one of the local committee-rooms opened by candidates in the different districts of each constituency, where their services will be gladly accepted, and on the day of the poll lend, if possible, a motor-car or other private conveyance, and that they should induce relatives, friends, and patients to give their services and lend cars or carriages. The ultimate object is to secure (1) improved conditions of service; and (2) medical control; the first to render it possible, and the second imperative, that every man shall do his duty to the State, his patient, and himself. It should appeal to all who have been compelled to go on the panel, and who have at heart the welfare of the poor and the honour of the profession."

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—W. H. Broughton (Sections I. and II.), Manchester; G. M. Cordingley (Sections I. and II.), Royal Free Hospital; H. Cox (Sections I. and II.), Birmingham; W. H. Edmunds (Sections I. and II.), St. Mary's Hospital; A. M. L. Greaves (Sections I. and II.), Royal Free Hospital; and E. M. Morris (Section I.), Charing Cross Hospital.

Medicine.—W. H. Edmunds (Sections I. and II.), St. Mary's Hospital; T. H. W. Idris (Section I.), University College Hospital; C. W. Jenner (Section II.), London Hospital; A. Lowndes (Sections I. and II.), Manchester; E. M. Morris (Section II.), Charing Cross Hospital; and S. Zarchi (Section I.), Freiburg and London Hospital.

Forensic Medicine.—W. H. Edmunds and J. T. E. Evans, St. Mary's Hospital; and A. Lowndes, Manchester.

Midwifery.—J. T. E. Evans, St. Mary's Hospital; H. C. C. Hackney, King's College Hospital; J. W. Harrison, St. Mary's Hospital; and A. Lowndes, Manchester.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—G. M. Cordingley, H. Cox, A. M. L. Greaves, J. W. Harrison, and C. W. Jenner.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Kathleen Mary Cole, Bertie Cecil Eskell, and Adolph Gottlob Hieber.

EXAMINATION FOR THE DIPLOMA IN PUBLIC HEALTH.

William Bainbridge, Wallace Pomeroy, and Sheo Nan Don Tiwary.

Part II., Completing Examination.—Alexander Henry Finch.

Part I.—Percy Moxey.

Dr. Carrel, of New York, and Dr. Arnozan, of Bordeaux, have been elected corresponding members of the Paris Academy of Medicine.

NATIONAL BUREAU FOR PROMOTING THE GENERAL WELFARE OF THE DEAF.—Dr. James Kerr Love will deliver a lecture on True Hereditary Deafness at the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W., on Tuesday next, March 4th, at 6 P.M., when Mr. Leo Bonn, the President, will take the chair.

TEIGNMOUTH (DEVON) HOSPITAL.—The sixty-fifth annual meeting of the subscribers to this hospital was held recently under the presidency of Dr. W. C. Lake. The financial statement showed that there was an unfavourable balance of £265. The medical report was satisfactory, and the committee states that it has been unable to obtain the services of a house surgeon.

PRESENTATION TO A MEDICAL MAN.—At a meeting of members of the Torquay Division of the British Medical Association held at Newton Abbot Hospital on Feb. 18th, Mr. H. Goodwyn, of Bovey Tracey, presiding, a presentation of a cheque and silver cigar case was made to Mr. William Athol Desmond King, M.R.C.S. Eng., L.R.C.P. Lond., of Paignton, in recognition of his valuable services as divisional honorary secretary during the Insurance Act negotiations.

EXETER ISOLATION HOSPITAL.—The medical officers of this hospital, in the annual report for 1912, state that during the year 513 patients (including 53 cases remaining over from 1911) were admitted, and of this number 157 came from the county of Devon. Six deaths occurred amongst the county patients and five amongst the city cases. Seven of the deaths were caused by diphtheria and four by scarlet fever. The average stay of each patient in the hospital was 48·59 days.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Feb. 20th, Sir Francis H. Champneys being in the chair. A letter was considered from the mother of a candidate who had tendered a false and fraudulent certificate of birth when endeavouring to enter for examination. The falsification of the certificate was regarded as having been done without the candidate's knowledge, and in these circumstances the Board resolved that the candidate be allowed to present herself at the next examination after her twenty-first birthday according to the birth certificate from Somerset House, and that the mother be informed that a person falsifying a certificate renders himself or herself liable to a penalty of 12 months' hard labour. Also that training schools should be advised to satisfy themselves that the dates on the birth certificates of pupils have not been tampered with. A letter was considered from the medical officer of health of Leicester suggesting that a midwife's remuneration should be a first charge upon the Maternity Benefit payable to her patient. The Board directed that the medical officer of health of Leicester be informed that the Board has no power to deal with the payment of midwives. A letter was considered from the secretary of the Wigan and District Guild of Midwives calling attention to the frequent cases of midwifery practice by uncertified women in the borough of Wigan. The Board decided that the secretary of the Wigan and District Guild of Midwives be informed that an amendment of the Midwives Act by the omission of the words "habitually and for gain" is highly desirable, and that the Board has made repeated suggestions to this effect. A letter was also considered from the clerk of the Cheshire county council forwarding an extract from the minutes of a meeting of the county council with reference to proceedings contemplated against an uncertified woman practising as a midwife. The Board directed that the clerk of the Cheshire county council be informed that an amendment of the Midwives Act by the omission of the words "habitually and for gain" is desirable, that the Board has made repeated suggestions to this effect, and that if this were done prosecutions under the Act would probably be undertaken within the time limit of the Summary Jurisdiction Act.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

AWDRY, ARTHUR JOHN, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Berkeley (Gloucestershire) Hospital.

AWDRY, WALTER ROBERT, M.B. Durh., M.R.C.S., has been appointed Honorary Medical Officer to the Berkeley (Gloucestershire) Hospital.

BUCKLEY, G. B., M.R.C.S., L.R.C.P. Lond., has been appointed Junior House Surgeon at the Manchester Royal Infirmary.

COWEN, T. P., M.D., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed to the Lectureship in Mental Diseases at the University of Liverpool.

DIXON, G. C., M.B., Ch.B. Vict., has been appointed House Physician at the Manchester Royal Infirmary.

GREENWOOD, ALFRED, M.B., B.S. Vict., has been appointed County Medical Officer of Health of Kent.

GREEVES, R. AFFLECK, M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Curator and Librarian to the Royal London Ophthalmic Hospital.

HACKER, H. POLLARD, M.B., B.Sc. Lond., has been appointed House Physician at the Hospital for Consumption and Diseases of the Chest, Brompton.

MARTIN, T. W., M.B., Ch.B. Vict., has been appointed Junior House Surgeon at the Manchester Royal Infirmary.

MEADEN, Captain A. A., R.A.M.C., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MIDGLEY, P. H., M.B., Ch.B. Vict., has been appointed Senior House Surgeon at the Manchester Royal Infirmary.

RAINFORTH, J. J., M.B. Lond., F.R.C.S. Eng., has been appointed Surgeon to the Ear, Nose, and Throat Department at Lincoln County Hospital.

RENTZSCH, S. H., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Launceston Infirmary and Rowe Dispensary, Launceston (Cornwall).

RYAN, D. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Monasterevan District of the county of Kildare.

SMITH, G. F. R., M.B., Ch.B. Liverp., M.B., B.S. Lond., has been appointed Honorary Anæsthetist to the Liverpool Infirmary for Children.

SPARROW, L. W., M.B., Ch.B. Vict., has been appointed House Physician at the Manchester Royal Infirmary.

WHITE, C. F., M.B., Ch.B. Vict., has been appointed Senior House Surgeon at the Manchester Royal Infirmary.

WHITE, CLIFFORD, M.D. Lond., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at the Samaritan Hospital, London.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100, with apartments, board, and laundry.

BARNSTAPLE, NORTH DEVON INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

BEDFORD COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

BERKSHIRE EDUCATION COMMITTEE.—Assistant Medical Inspector of Schools. Salary £300 per annum.

BIRKENHEAD BOROUGH HOSPITAL.—Two House Surgeons, Senior and Junior. Salaries £100 and £80 respectively, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. Salary £75 per annum, with board, rooms, and laundry allowance.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.—Honorary Surgeon and Registrar.

BRADFORD ROYAL INFIRMARY.—Two House Surgeons, unmarried. Salary £100 per annum, with board, residence, and washing.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRIGHTON, COUNTY BOROUGH OF.—Tuberculosis Officer. Salary £500 per annum.

BRISTOL ROYAL INFIRMARY.—Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £75 per annum, with board, laundry, and apartments. Also Honorary Surgical Registrar.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and washing.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CAIRO, SCHOOL OF MEDICINE.—Assistant to Professor of Biology and Parasitology. Salary £400 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and laundry.

CAMBRIDGE, COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—House Surgeon for Ophthalmic and Ear and Throat Departments, for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 per annum, with board, lodging, and washing.

CARSHALTON, SURREY, QUEEN MARY'S HOSPITAL FOR CHILDREN.—Senior Assistant Medical Officer. Salary £250 per annum, with board, lodging, and washing.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Honorary Pathologist.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

DURHAM COUNTY COUNCIL.—Assistant Tuberculosis Medical Officers. Salary £300 per annum.

EALING, KING EDWARD MEMORIAL HOSPITAL.—Honorary Ophthalmic Surgeon.

EAST LONDON MUNICIPALITY, South Africa.—Medical Officer of Health. Salary £600 per annum.

ESSEX, ADMINISTRATIVE COUNTY OF.—Three Tuberculosis Officers. Salary £500 per annum each.

GRAVESEND HOSPITAL, Kent.—House Surgeon. Salary £100 per annum, with board and residence.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—House Physician and House Surgeon, In-patients' Department, Haverstock Hill, for six months. Salaries at rate of £70 per annum, with board, residence, and laundry. Also Assistant Casualty Officer, Out-patients' Department, Bayham-street, N.W., for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

HEREFORD COUNTY AND CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, washing, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Resident Medical Superintendent. Salary 100 guineas per annum, with board and residence.

HOSPITAL FOR WOMEN, Soho-square, W.—Junior Resident Medical Officer for eight months. Salary at rate of £30 per annum, with board, lodging, and laundry.

HUDDERSFIELD ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £60 per annum, with board, residence, and washing.

HULL, VICTORIA CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £40 per annum, with board and laundry.

LEEDS GENERAL INFIRMARY.—Resident Obstetric Officer for six months. Salary £50 per annum, with board, residence, and laundry.

LISTER INSTITUTE OF PREVENTIVE MEDICINE.—Second Research Assistant in Biochemical Department. Salary £200 per annum. Also Assistant Bacteriologist. Salary £250 per annum.

LIVERPOOL, HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Mount Pleasant.—Assistant Medical Officer and Pathologist. Salary £100 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—Resident House Surgeon and Resident House Physician for six months. Salary £30, with board and lodging.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salary in each case at rate of £60 per annum, with board and residence.

LIVERPOOL STANLEY HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £80 per annum, with board, residence, &c.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £160 per annum, with apartments, attendance, coal, and gas.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Junior House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

MILDMAY MISSION HOSPITAL, Austin-street, Bethnal Green, E.—Assistant Physician, Assistant Surgeon, and Anæsthetist.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £170. Also Resident and Assistant Resident Surgeons for Branch. Salaries £180 and £170 per annum respectively, with apartments, attendance, light, and fuel.

NOTTINGHAM WORKHOUSE INFIRMARY.—Two Resident Assistant Medical Officers, unmarried. Salary £150 per annum, with apartments, board, washing, and attendance.

PRESTON, COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

RHONDDA URBAN DISTRICT COUNCIL.—Medical Examiner of School Children. Salary £250 per annum.

ROTHERHAM HOSPITAL.—Senior House Surgeon. Salary £110 per annum, with board, lodging, and washing.

ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £71 per annum.

ROYAL FREE HOSPITAL, Gray's Inn-road, London, W.C.—Assistant Surgeon.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Lang Clinical Research Scholarship. Salary at rate of £120 per annum. Also Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five appointments.

ST. GEORGE'S DISPENSARY AND SCHOOL CLINIC, Surrey-row, Blackfriars, S.E.—Junior Medical Officer for three or six months. Salary at rate of £100 per annum. Also Surgeon to the Nose, Throat, and Ear Clinic for the Treatment of Elementary School Children. Salary at rate of £50 per annum.

ST. THOMAS'S HOSPITAL.—Resident Assistant Surgeon.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon. Also Casualty House Surgeon for six months. Salary at rate of £65 per annum, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £60 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £70 per annum, with board and residence.

SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments and rations.

SHREWSBURY, SALOP INFIRMARY.—House Physician for six months. Salary at rate of £90 per annum, with board and apartments.

SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior and Junior House Surgeons. Salaries £100 and £90 per annum respectively, with residence, board, and washing.

STAFFORD, COTON HILL MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £170 per annum, with residence, board, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, washing, and residence.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £150 per annum, with apartments, rations, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

SUNDERLAND CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board, residence, and laundry.

TALGARTH, BRECON AND RADNOR ASYLUM, Breconshire.—Assistant Medical Officer, unmarried. Salary £170 per annum, with quarters, board, attendance, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea.—Surgeon to Out-patients.

WANDSWORTH UNION INFIRMARY, St. John's Hill, near Clapham Junction.—Junior Assistant Medical Officer, unmarried, for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon for six months. Salary at rate of £100 per annum, with apartments, maintenance, and laundry.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Physician.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WEST RIDING OF YORKSHIRE.—Assistant County Medical Officer. Salary £300 per annum.

WHITECHAPEL UNION INFIRMARY, Vallance-road, E.—Second Assistant Resident Medical Officer. Salary £100 per annum, with rations, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, rooms, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Westray, in the county of Orkney; at Dufftown, in the county of Banff; and at Poulton-le-Fylde, in the county of Lancaster.

THE Secretary of State for the Home Department gives notice of vacancies for a Medical Referee under the Workmen's Compensation Act, 1906, for the Greenock District of the Sheriffdom of Renfrew and Bute; and for County Court Circuit No. 37 (Uxbridge County Court).

Births, Marriages, and Deaths.

BIRTHS.

COCKBURN.—On Feb. 23rd, at Castlebar-road, Ealing, the wife of R. P. Cockburn, M.D., of a son.

COURTNEY.—On Feb. 19th, at Barton, Ampthill, Bedford, the wife of H. G. S. Courtney, M.R.C.S., L.R.C.P., of a son.

HEDLEY.—On Feb. 24th, 1913, at 11, John-street, Berkeley-square, W., the wife of John Prescott Hedley, M.C. Cantab., F.R.C.S. Eng., of a son.

MACINDOE.—On Feb. 19th, at Morton, Torrington, N. Devon, the wife of J. G. Macindoe, M.B., C.M., of a son.

YOUNG.—On Feb. 25th, at 57, Harley-street, W., the wife of R. A. Young, M.D., B.Sc., F.R.C.P., of a son.

MARRIAGES.

ADAMS—APPLEYARD.—On Feb. 15th, at St. Marylebone Parish Church, by the Rev. F. R. Holmes, James Wilmot Adams, M.B., B.C. Cantab., son of Dr. James Adams, of Chiswick-place, Eastbourne, to Irene, youngest daughter of the late Dr. James Appleyard, of Longford, Tasmania.

ROBERTSON—LUSK.—On Feb. 21st, at the East United Free Church, Strathaven, Lanarkshire, Berkeley H. Robertson, M.B., Ch.B., to Janet, only daughter of John Lusk, Dunavon, Strathaven.

DEATHS.

BROOK.—On Feb. 18th, at Moulton House, Weston-super-Mare, Henry Brook, M.R.C.S. Eng., L.S.A., aged 85, formerly Assistant-Surgeon Medical Staff in the Crimean Campaign.

PAIN.—On Feb. 12th, at Old Cairo, E. M. Pain, B.A., M.B., Ch.M. Sydney.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE VARYING CAPACITY OF SPOONS.

THE medical profession in Australia, with the assistance of pharmacists, is making an endeavour to check the practice of using spoons as measures for medicines. That this custom is not without danger has been demonstrated from time to time, and it has been shown that teaspoons vary in capacity from 90 to 120 minims (THE LANCET, March 4th, 1911, p. 635), whereas the teaspoon generally understood by prescribers should have a capacity of 60 minims. At a meeting of representatives of the Victorian Branch of the British Medical Association and delegates attending the Australasian Pharmaceutical Conference, held in January, a resolution was passed recommending the various State pharmaceutical societies to request pharmacists to write the dosage of medicines dispensed by them in drachms and ounces instead of in spoonfuls, and to advise their clients to use properly graduated measure glasses. As has been pointed out before in THE LANCET, in these days of standardised preparations and scientific prescribing and dispensing, teaspoons and tablespoons as measures are obviously anachronisms, and the profession in Australia is to be congratulated on making a serious attempt to rectify the anomaly.

VITAL STATISTICS OF ST. VINCENT.

THE Hon. C. Gideon Murray, Administrator of the Island of St. Vincent (which is 18 miles in length and 11 in breadth, and is situated about 95 miles west of Barbados), has forwarded to the Colonial Office a report on the Blue-Book of the Colony for 1911-12. From this it appears that the population is estimated at 43,117. The births registered in the year numbered 1790; of these, 1037, or 57·93 per cent., were illegitimate. The total registered deaths were 914, being 21·19 per 1000 of the estimated population. The infant mortality (infants under one year, exclusive of stillbirths) was 20·02 per cent. of the total number of deaths. The causes of death were: General diseases (including syphilis 68, tubercle 24, tetanus 25, malarial fevers 7, and dysentery 16), 232; diseases of nervous system, 36; diseases of circulatory system, 59; diseases of respiratory system, 56; diseases of digestive system, 172; parasites, 71; age, 91; stillborn, 94; other diseases, 103; total, 914. In the towns the authorities are realising more and more the importance of stricter sanitation, and are taking steps accordingly. In the villages, however, sanitary matters are still on a most primitive basis, although the Government through their district medical officers spare no pains to impress upon the population generally the necessity for care in this direction. During the year there were 955 admissions to the Colonial Hospital, making, with those remaining from the previous year, 1014 cases treated, the daily average being 60·3. The death-rate was 5·5 per cent. of the total cases. Operations numbered 128. The medical officer is greatly assisted in his work by the presence of an efficient European nurse-matron, selected by the Colonial Nursing Association. The number of inmates of the leper asylum on March 31st, 1911, was 7. During the year there was 1 admission, 1 died, and 1 was discharged, leaving 6 inmates in the asylum at the end of the year. Under a new Public Health Ordinance, passed in 1910, compulsory segregation of lepers is provided for. Early in the year the old military hospital was renovated at a cost of £250 and opened as a yaws hospital, capable of holding 50 patients. The disease of yaws has long been ravaging the homes of the labouring population in the colony, and the institution of this hospital has been much appreciated by them. The maximum temperature for the year was 88° F. (in August, September, and October) and the minimum 68° (February). Except in August and September, when the atmosphere is uncomfortably hot, although not even in those months insalubrious, the climate may be regarded as most healthy for both Europeans and coloured persons. Malaria is hardly known, while yellow fever has proved itself to be a disease of the past.

MUNICIPAL BY-LAWS.

NOWADAYS the by-laws of the great towns often have few friends, and sometimes the officials who have to carry them out cannot be found to defend them. This was a point made by Mr. Henry Vivian in a lecture on Feb. 14th at the Hampstead Garden Suburb, when he foreshadowed the great developments that are being contemplated by the co-partnership movement in connexion with the extension of the Suburb by more than 400 acres. The by-law system is so much in the hands of local interests that he was satisfied no solution would be found until the matter was made a national one. He instanced the course of Factory Act inspection as one that might well be followed with regard to building by-laws. When the operation of the Factory Act was largely a local matter discontent prevailed, but now that it is a Home Office concern everyone is satisfied as to the way that the work is done, and something of a similar character would be needed if the planning of towns was to proceed on sufficiently advanced lines. In the course of his speech he mentioned that the Co-partnership Tenants, Limited, had undertaken the responsibility for the extension of the Hampstead Garden Suburb by 380 acres, and that this would mean employment for about 1000 men during the next seven years. It was hoped to organise a scheme of technical education by which the employees would be able to secure instruction near the scene of their work, an innovation with regard to the building trade that will be watched with great interest by all concerned in the future of British handicrafts. We are informed that when the estate is completed something like £2,500,000 will have been spent on the houses and public buildings, so that the Co-partnership Tenants, Limited, will be making an important contribution towards housing the people in the northern suburbs of London.

SHORT SEA TRIPS FOR EARLY HOLIDAYS.

Dr. F. Carden Brodie writes:—Your note on short sea trips for early holidays in THE LANCET of last week leads me to supplement the 15 days' trip mentioned there by drawing attention to an enjoyable and inexpensive cruise which can be taken on the Royal Mail steamers to Morocco and Canary Islands, leaving London every fortnight. This voyage lasts 24 days, costs about £20, and enables the passenger to land at nine different ports, four of which are in Morocco itself. The boats are comfortable and the catering is excellent. Having been myself half a dozen times, I can thoroughly recommend this holiday to anyone wanting a change; the scenes are most picturesque and ever varying.

Inquirer (*Belfast*) has omitted to enclose his name and full address.

S. N. Rao.—We do not recommend the treatment.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Prof. J. C. Bose: An Automatic Method for the Investigation of the Velocity of Transmission of Excitation in Mimosa (communicated by Prof. S. H. Vines).—Mr. W. K. Spencer: The Evolution of the Cretaceous Asteroidea (communicated by Dr. A. S. Woodward).—Dr. E. A. N. Arber: A Preliminary Note on the Fossil Plants of the Mount Potts Beds, New Zealand, collected by Mr. D. G. Lillie, biologist to Captain Scott's Antarctic Expedition in the *Terra Nova* in 1911 (communicated by Prof. T. McK. Hughes).—Surgeon-General Sir D. Bruce, Major D. Harvey, Major A. E. Hamerton, and Lady Bruce: (1) Trypanosomes Found in the Blood of Wild Animals living in the Sleeping Sickness Area, Nyasaland; (2) Trypanosome Diseases of Domestic Animals in Nyasaland—II., Trypanosoma Caprae (Kleine); (3) Morphology of Various Strains of the Trypanosome causing Disease in Man in Nyasaland—I., The Human Strain.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF PATHOLOGY (Hon. Secretaries—H. R. Dean, Gordon W. Goodhart): at 8.30 P.M.

Laboratory Meeting at the Bacteriology Laboratory, London Hospital Medical College.

H. M. Turnbull and J. McIntosh: Demonstration of the Lesions of Human and Experimental Poliomyelitis.

J. McIntosh and J. McQueen: The Immunity Reactions of an Inagglutinable Strain of Bacillus Typhosus.

P. Fildes and R. Donald: A New Method of Enumerating Bacteria in Fluids, with Special Reference to so-called "Saline Fever."

Alfred A. Lenden: Ovarian Cystoma with Splenic Metastasis.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawfurd, D'Arcy Power): at 5 P.M.

Mr. Joseph Offord (Hon. Member of the Archæological Association of Rome): (1) The Reissner Medical Papyrus; (2) Restrictions upon Circumcision under the Romans.

Mr. H. Barlow-English: Herbals 1525–1640 (examples will be shown).

Dr. Leonard Guthrie: The Lady Sedley's Receipt Book, 1686.

Mr. J. D. Marshall will show some examples of Old Drug Pots by means of the epidiascope.

SECTION OF OPHTHALMOLOGY and SECTION OF NEUROLOGY: at 8 P.M. } Combined Meeting.

Discussion:

On Disease of the Pituitary Body, to be opened by Professor Schäfer, F.R.S., and Mr. J. Herbert Fisher.

Illustrative Cases and Specimens will be shown by Dr. H. L. Eason, Dr. Grünbaum, Dr. Gordon Holmes, Dr. Grainger Stewart, Dr. W. H. Willcox, Dr. F. E. Batten, and others.

THURSDAY.

SECTION OF BALNEOLOGY AND CLIMATOLOGY (Hon. Secretary—Chas. W. Buckley): at 5.30 P.M.

Resumed Discussion:

On Fibrositis, introduced by Dr. Ackerley in a paper entitled "Daily Habits in Civilised Life as Factors in the Causation of Fibrositis: with Suggestions for its Prevention and Cure."

The following will take part in the discussion:—Dr. Luff, Dr. Bain, Dr. Leonard Williams, Dr. Fortescue Fox, Dr. Wainwright, Dr. Pagan Lowe, and others.

SECTION OF OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—W. W. H. Tate, T. W. Eden): at 8 P.M.

Discussion:
On Ventrifixation—
(1) Indications for the Operation (to be opened by Dr. W. S. A. Griffith).
(2) Technique of the Operation (to be opened by Dr. H. Briggs).
(3) After-results of the Operation (to be opened by Dr. A. E. Giles).

FRIDAY.

SECTION OF LARYNGOLOGY (Hon. Secretaries—Dan McKenzie, E. A. Peters): at 4.30 P.M.

Cases, &c.,
Will be shown by Mr. Herbert Tilley, Mr. George N. Biggs, Mr. W. G. Howarth, Mr. T. Jefferson Faulder, Mr. E. D. Davis, Dr. H. L. Whale, and others.

SECTION OF ANÆSTHETICS (Hon. Secretaries—H. J. Scharlieb, C.M.G., H. E. G. Boyle): at 8.30 P.M.

Mr. H. Bellamy Gardner: Technique in General Anæsthesia for Intra-nasal Operations.
Mr. Buckston Browne: A Brief Eulogy of Mr. Clover.
Mr. Norbury and Dr. Morcom: Hedonal Alone and in Conjunction with General Anæsthetics.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—9 P.M., Mr. J. Berry: The Surgery of the Thyroid Gland, with Special Reference to Exophthalmic Goitre (illustrated by specimens and photographs on view from 8.30 P.M.) (Lettsomian Lecture.)
WEDNESDAY.—7.30 P.M., Anniversary Dinner at the Whitehall Rooms, Hotel Metropole, London.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Mr. F. W. Goodenough: Coal Gas as a Fuel for Domestic Purposes. (Cantor Lecture.)
WEDNESDAY.—8 P.M., Mr. E. R. Burdon: The Development of Research Work in Forest Products.

UNITED SERVICES MEDICAL SOCIETY (PORTSMOUTH BRANCH), Alexandra Hospital, Cosham.

TUESDAY.—4.15 P.M., Fleet-Surgeon F. H. A. Clayton, R.N.: Notes on Three Unusual Cases.—Major G. J. S. Archer, R.A.M.C.: The Treatment of General Peritonitis due to Appendicitis.—Captain J. H. Grogan, R.A.M.C.: Three Cases of Malarial Fever contracted in England.

MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY, Royal Infirmary, Leicester.

TUESDAY.—3.30 P.M., Specimens and Instruments will be shown by Mr. J. F. Jordan and Dr. N. I. Spriggs. Short Communications:—Dr. H. T. Hicks: Localising Septic Peritonitis of Puerperal Origin.—Dr. C. Marriott: Notes on Cases of Hysteropexy.—Dr. T. Clare: Remarks on a Case of Dysmenorrhœa and Sterility. Paper:—Dr. N. I. Spriggs: Congenital Intestinal Occlusion, with an Account of 24 Cases and Remarks based upon the Literature of the Subject.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., Dr. H. L. Jones: The Physiological Effects of the Magnetic Field.—Dr. H. Humphris: The Rationale of the Static Current.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY.—5 P.M., Dr. A. J. Jex-Blake: Death by Lightning and Electric Currents. (Goulstonian Lectures.)
THURSDAY.—5 P.M., Dr. F. de H. Hall: Intra-thoracic Aneurysm. (Lumleian Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY AND WEDNESDAY.—5 P.M., Prof. W. Trotter: The Principles and Technique of the Operative Treatment of Malignant Disease of the Mouth and Pharynx. (Hunterian Lectures.)
FRIDAY.—5 P.M., Dr. C. G. Seligmann: The Hamitic Element in the Population of the Anglo-Egyptian Sudan. (Arris and Gale Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. Davis: Clinique (Skin). 5.15 P.M., Lecture:—Dr. H. Thursfield: Clinical Enlargements of the Spleen in Children.
TUESDAY.—4 P.M., Dr. G. Holmes: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. Latham: Some Points in the Treatment of Spasmodic Asthma.
WEDNESDAY.—4 P.M., Mr. F. S. Kidd: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. H. Campbell: The Treatment of Neuralgia and Spasm by Nerve Injections.
THURSDAY.—4 P.M., Mr. A. Carless: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. D. Windle: Irregularities of the Pulse in Toxic Conditions: their Clinical Recognition and Significance (lantern demonstration).
FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Morton: Radio-Therapeutics.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin. 5 P.M., Lecture:—Dr. R. Jones: The Medical Treatment of Early Insanity.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Lecture:—Dr. Owen: Practical Medicine. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin. 5 P.M., Lecture:—Dr. Simson: Clinical (Gynæcology).
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.
TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine.
WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. H. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery.
THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine.
FRIDAY.—Out-patient Demonstrations;—10 A.M., Dr. G. Holmes: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.
SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. H. Bickerton: Eye.—10 A.M., Dr. W. Steuart: Radiography.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. H. Evans: Pain and Lesions of and around the Umbilicus.
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 4.30 P.M., Lecture:—Dr. G. W. Macdonald: Bacterial Infections of the Blood.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

MONDAY (and will continue for a fortnight).—Special Post-Graduate Course in Diagnosis and Treatment of Pulmonary Tuberculosis:—Morning: Demonstrations and Practical Work in the Laboratory. Afternoon: Clinical Demonstration in the General and Special Out-patient Department and in the Wards. 4.30 P.M., Series of Public Lectures.
WEDNESDAY.—4.30 P.M., Prof. Bulloch: The Problem of Infection and Predisposition in Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. K. Wilson: Infantilism.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. K. Wilson: Polyglandular Syndromes.

CANCER HOSPITAL, Museum of the Hospital, Fulham-road, S.W.

WEDNESDAY.—5 P.M., Mr. J. H. Evans: Cancer of the Breast (illustrated by cases and microscopic and other specimens).

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.

Course of Lecture-Demonstrations on Diseases of the Chest, with Special Reference to Tuberculosis (including a Tuberculin Course):—

MONDAY.—4.30 P.M., Dr. K. Kellie.
WEDNESDAY.—4.30 P.M., Dr. A. Davies.
FRIDAY.—3.30 P.M., Dr. S. Thompson.

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Chelsea Bridge-road, S.W.

TUESDAY.—5 P.M., Dr. H. Maclean: Lipoids.
THURSDAY.—5 P.M., Dr. H. Chick: The Laws Governing Disinfection by Various Agencies.

ROYAL EYE HOSPITAL (LONDON SCHOOL OF OPHTHALMIC SURGERY AND MEDICINE), St. George's-circus, Southwark, S.E.

TUESDAY.—4.30 P.M., Lecture:—Mr. Hosford: Senile Cataract, with Especial Reference to Difficulties in Treatment.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. W. K. Sibley: Treatment of Syphilis.
THURSDAY.—6 P.M., Dr. M. Dockrell: Ulerythema—I., Aphryogenes; II., Centrifugum; III., Sycosiformis.

UNIVERSITY OF LONDON (UNIVERSITY COLLEGE), The Francis Galton Laboratory for National Eugenics.

TUESDAY.—8 P.M., Lecture:—Dr. D. Heron: On Some Points with Regard to our Present Knowledge of Heredity in Cases of Feeble-mindedness.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), London Hospital, Mile End-road, E.

Course of Lectures and Demonstration on Neurology (illustrated with Clinical Cases):—

MONDAY.—4.30 P.M., Dr. T. Thompson: Local Spinal Lesions.
TUESDAY.—4.30 P.M., Dr. Turnbull: Tabes Dorsalis.
WEDNESDAY.—4.30 P.M., Dr. G. Holmes: Symptoms of Cerebellar Disease.
FRIDAY.—4.30 P.M., Dr. H. Head: Various Forms of Chorea.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

MONDAY.—5 P.M., General Meeting.
THURSDAY.—3 P.M., Mr. W. B. Hardy: Surface Energy. (Lecture I.)
FRIDAY.—9 P.M., Mr. C. T. R. Wilson: Photography of the Paths of Particles Ejected from Atoms.
SATURDAY.—3 P.M., Prof. Sir J. J. Thomson, O.M.: The Properties and Constitution of the Atom. (Lecture V.)

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Mr. W. H. Hey: Cervical Adenitis. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Fothergill: A New Operation for Prolapse of the Uterus complicated by Hypertrophy of the Cervix. (Post-Graduate Clinic.)
FRIDAY.—4.30 P.M., Mr. Rayner: The Surgical Aspects of Infantile Paralysis. (Post-Graduate Clinic.)

BIRMINGHAM GENERAL HOSPITAL.

TUESDAY.—3.30 P.M., Mr. H. Edwards: The Diagnostic Value of the Bismuth Meal. (Post-Graduate Clinic.)

QUEEN'S HOSPITAL, Birmingham.

FRIDAY.—3.30 P.M., Dr. Ball: Demonstration of Disorders in Children. (Post-Graduate Clinic.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

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THE INDEX TO THE LANCET.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 26th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 20	30·10	N.E.	...	45	39	32	32	34	Overcast
,, 21	30·26	N.E.	...	65	45	34	36	39	Cloudy
,, 22	30·48	E.	...	53	42	36	38	39	Overcast
,, 23	30·39	N.E.	...	79	48	32	32	35	Fine
,, 24	29·98	S.E.	...	73	50	32	35	37	Fine
,, 25	29·83	S.	...	72	50	37	41	44	Fine
,, 26	29·79	S.	0·01	68	51	43	45	45	Raining

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